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Taxonomic paper

An updated checklist of aquatic plants of Myanmar and Thailand

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Abstract

The flora of Tropical Asia is among the richest in the world, yet the actual diversity is estimated to be much higher than previously reported. Myanmar and Thailand are adjacent countries that together occupy more than the half the area of continental Tropical Asia. This geographic area is diverse ecologically, ranging from cool-temperate to tropical climates, and includes from coast, rainforests and high mountain elevations. An updated checklist of aquatic plants, which includes 78 species in 44 genera from 24 families, are presented based on floristic works. This number includes seven species, that have never been listed in the previous floras and checklists. The species (excluding non-indigenous taxa) were categorized by five geographic groups with the exception of to reflect the rich diversity of the countries' floras.

Keywords

Aquatic plants, flora, Myanmar, Thailand

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Introduction

Myanmar and Thailand, adjacent countries, comprise more than half of the tropical region for continental Asia. Situated within the Indo-Myanmar (Burma) hot-spot, this area is among the richest in biodiversity in the World (Van Dijk et al. 2004), with the estimated biodiversity being much higher than has been previously reported. The area is geographically diverse, going from cool-temperate to tropical and from the coast to rainforests to high mountains (Kress et al. 2003).

The aquatic floras of Myanmar and Thailand have been separately investigated. The Flora of Thailand project was launched in the 70's, led by European and Thai herbaria and institutions. The aquatic species were treated in separated volumes (Table 1). The aquatic flora of Myanmar has not been published yet, although many of the species investigated are listed in the aquatic flora of India (Cook 1996).

Table 1.

Aquatic plant families treated in volumes of Flora of Thailand.

Volume	Family	Reference
Volume 5 part 2	Scrophulariaceae	Yamazaki (1990)
Volume 7 part 2	Callitrichaceae	Larsen (2000)
Volume 7 part 3	Alismataceae	Haynes (2001d)
Volume 7 part 3	Aponogetonaceae	Haynes (2001a)
Volume 7 part 3	Cymodoceaceae	Haynes (2001e)
Volume 7 part 3	Hydrocharitaceae	Haynes (2001b)
Volume 7 part 3	Lemnaceae	Landolt (2001)
Volume 7 part 3	Limnocharitaceae	Haynes (2001c)
Volume 7 part 3	Potamogetonaceae	Haynes (2001f)
Volume 9 part 1	Pontederiaceae	Chayamarit (2005)
Volume 9 part 2	Typhaceae	Simpson (2008)
Volume 11 part 2	Acoraceae	Boyce (2012)
Volume 11 part 2	Araceae	Boyce et al. (2012)
Volume 12 part 2	Ruppiaceae	Ito (2013a)

Materials and methods

The aquatic plant specimens treated in this study come from field works carried out in 2006 (Myanmar), 2008 (Myanmar), and 2012 (Thailand). Plants were hand-collected from aquatic environments e.g. ponds and lakes. Occasionally collections were made by boat (Fig. 1). In addition to field collections, exhaustive herbarium surveys were conducted in major herbaria, including AAU (Denmark), BFK (Thailand), GH (USA), MBK (Japan), TI (Japan), and TNS (Japan). The herbarium specimens were morphologically identified by using Cook (1996) or the Flora of Thailand series (Table 1). For Potamogetonaceae, in addition to the above mentioned literature, Flora of China treatment was also referred (Guo et al. 2010); for Menyanthaceae, for which no volumes for the family has been published in the Flora of Thailand, Cook (1996), Ho and Ornduff (1995), and Tippery et al. (2009) were used for identification. The identified species were classified and ordered following Haston et al. (2009). Some specimens of species cited in previous floras were examined. Species distribution was obtained from regional floras. Where distribution data were absent or where the floras have not yet been published, question marks have been inserted, e.g., ? Myanmar.

Figure 1.

Collecting aquatic plants in a lake (Myanmar).

A checklist of aquatic plants of Myanmar and Thailand (and adjoining area)

Order Nymphaeales

Family Cabombaceae

Genus *Cabomba* Aubl., 1775

Cabomba caroliniana A. Gray., 1837

Distribution: Native to the Americas.

Family Nymphaeaceae

Genus *Barclaya* Wall., 1827

Barclaya longifolia Wall., 1827

Materials

a. country: Thailand; locality: Khao San Yot Natl Park.; verbatimLatitude: 12° 9' 15" N; verbatimLongitude: 99° 58' 44" E; eventDate: Nov. 13, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1706; institutionCode: BKF
b. country: Thailand; locality: Phang Nga Province; Kuraburi District, Bangwan stream; verbatimLatitude: 9° 13' 34"N; verbatimLongitude: 98° 26' 22"E; eventDate: Oct. 25, 2006; recordedBy: Y. Ito; collectionID: T. Muadsud 137; institutionCode: BKF
c. country: Thailand; locality: Nong Khai Province; Bungkhla District, Phu Wua Wilflife Sanctuary; verbatimLatitude: 18° 14' 41" N; verbatimLongitude: 103° 57' 58" E; eventDate: Aug. 27, 2001; recordedBy: Y. Ito; collectionID: R. Pooma et al. 2781; institutionCode: BKF
d. country: Thailand; locality: Kanchanaburi Province; Sangkla Buri, Nong Lu, Tham kaeo Sawan Bandan Temple; verbatimLatitude: 15° 16' 20" N; verbatimLongitude: 98° 28' 3" E; eventDate: Aug. 25, 2010; recordedBy: Y. Ito; collectionID: V. Chamchumroon et al. 4807; institutionCode: BKF
e. country: Thailand; locality: Nong khai Province; Bungklaa, Phutoknoi; verbatimLatitude: 17° 56' 32" N; verbatimLongitude: 102° 44' 57" E; eventDate: Jun. 21, 1997; recordedBy: Y. Ito; collectionID: C. Niyomdham 5090; institutionCode: AAU
f. country: Thailand; locality: Ubon Ratchathani Province; Soi Sawan waterfall; verbatimLatitude: 15° 27' 35" N; verbatimLongitude: 105° 34' 44" E; eventDate: Nov. 15, 2003; recordedBy: Y. Ito; collectionID: W. La-ongsri 24269; institutionCode: BKF
g. country: Thailand; locality: Ubon Ratchatani Province; Khong Chian District, Udob ratehatani Gene conservation station; verbatimLatitude: 15° 27' 1" N; verbatimLongitude: 105° 29' 2" E; eventDate: Sep. 15, 2001; recordedBy: Y. Ito; collectionID: J.F. Maxwell 01-436; institutionCode: GH

h. country: Thailand; locality: Nong Khai Province; Phn Wun Wildlife Sanctuary, Thamtonn fall; verbatimLatitude: 17° 53' 7" N; verbatimLongitude: 102° 45' 2" E; eventDate: Jun. 14, 2004; recordedBy: Y. Ito; collectionID: Th. Wongprasert et al. 046-85; institutionCode: BKF
i. country: Thailand; locality: Saraburi Province; Salum Lake; verbatimLatitude: 14° 32' N; verbatimLongitude: 101° 2' E; eventDate: Oct. 14, 1973; recordedBy: Y. Ito; collectionID: J.F. Maxwell 73-503; institutionCode: AAU
j. country: Thailand; locality: Chantaburi Province; S of Mekam rubber plantation; verbatimLatitude: 12° 35' N; verbatimLongitude: 102° 20' E; eventDate: Aug. 22, 1966; recordedBy: Y. Ito; collectionID: K. Larsen et al. 1746; institutionCode: AAU
k. country: Thailand; locality: Phangnga Province; Takuapah District, 15 km N of Takuapah; verbatimLatitude: 8° 53' N; verbatimLongitude: 98° 21' E; eventDate: Jul. 13, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 30887; institutionCode: AAU

Distribution: India (Southern [Andaman Isl.]), ?Myanmar, Thailand.

Notes: Fig. 2.

Figure 2.
Barclaya longifolia in Thailand (25 Aug. 2010). Credit: R. Pooma.

Genus *Nymphaea* L., 1753

Nymphaea nouchali Burm. f., 1768

Materials

a. country: Myanmar; locality: Bago Division; border to Rakhain State; verbatimLatitude: 18° 40' 27" N; verbatimLongitude: 94° 53' 41" E; eventDate: Dec. 11, 2006; recordedBy: Y. Ito; collectionID: Sugawara et al. 036514; institutionCode: TI
b. country: Myanmar; locality: Rakhain State; between God village and mangrove forest; verbatimLatitude: 18° 29' 30" N; verbatimLongitude: 94° 16' 13" E; eventDate: Dec. 12, 2006; recordedBy: Y. Ito; collectionID: Sugawara et al. 036535; institutionCode: TI

c. country: Thailand; locality: Sattalip, Taong Breng; verbatimLatitude: 12° 43' N; verbatimLongitude: 100° 56' E; eventDate: Oct. 1, 1969; recordedBy: Y. Ito; collectionID: J.F. Maxwell s.n.; institutionCode: AAU
d. country: Thailand; locality: Narathiwat Province; S of Naratiwat; verbatimLatitude: 6° 30' N; verbatimLongitude: 101° 45' E; eventDate: Mar. 8, 1974; recordedBy: Y. Ito; collectionID: K. Larsen & S.S. Larsen 33086; institutionCode: AAU
e. country: Thailand; locality: Ayuthaya Province; Ayuthaya District; verbatimLatitude: 14° 22' N; verbatimLongitude: 100° 35' E; eventDate: Dec. 3, 1979; recordedBy: Y. Ito; collectionID: T. Shimizu et al. T-26093; institutionCode: AAU
f. country: Thailand; locality: Phetchabury; verbatimLatitude: 13° 30' 06" N; verbatimLongitude: 99° 47' 37" E; eventDate: Nov. 14, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1711; institutionCode: BKF

Distribution: Bangladesh, China (Southern), India (nationwide), ?Indonesia, Myanmar, Pakistan, Papua New guinea, ?Philippines, Thailand, Sri Lanka, ?Vietnam.

Nymphaea pubescens Willd., 1799

Materials

a. country: Myanmar; locality: Inle lake; verbatimLatitude: 20° 35' 21" N; verbatimLongitude: 96° 54' 34" E; eventDate: May. 1, 1938; recordedBy: Y. Ito; collectionID: F. G. Dickason 7867; institutionCode: GH
b. country: Myanmar; locality: Bago Division; W of Pyay; verbatimLatitude: 18° 42' 22" N; verbatimLongitude: 95° 5' 59" E; eventDate: Dec. 9, 2006; recordedBy: Y. Ito; collectionID: Sugawara et al. 036431; institutionCode: TI
c. country: Thailand; locality: Rachaburi Province; Huai Yang waterfall; verbatimLatitude: 12° 29' N; verbatimLongitude: 99° 41' E; eventDate: Aug. 14, 1966; recordedBy: Y. Ito; collectionID: K. Larsen et al. 1588; institutionCode: AAU
d. country: Thailand; locality: Mae Sariang Province; Ban Huai Sai 12 km A of Mas Sariang; verbatimLatitude: 18° 6' N; verbatimLongitude: 97° 55' E; eventDate: Jul. 12, 1968; recordedBy: Y. Ito; collectionID: K. Larsen et al. 2370; institutionCode: AAU
e. country: Thailand; locality: Phattalung Province; Khuankhanum District; Talenoi Lake, Talenoi Wildlife Sanctuary; verbatimLatitude: 7° 46' N; verbatimLongitude: 100° 7' E; eventDate: Dec. 20, 1979; recordedBy: Y. Ito; collectionID: T. Shimizu et al. 27730; institutionCode: AAU
f. country: Thailand; locality: Khao San Yot Natl Park.; verbatimLatitude: 12° 14' 42" N; verbatimLongitude: 99° 55' 60" E; eventDate: Nov. 13, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1704; institutionCode: BKF

Distribution: Bangladesh, India (nationwide), Myanmar, Pakistan, Papua New Guinea, Thailand, Sri Lanka.

Order Acorales

Family Acoraceae

Genus *Acorus* L., 1753

Acorus calamus L., 1753

Materials

a. country: Myanmar; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; recordedBy: Y. Ito; collectionID: MBK025720; institutionCode: TI
b. country: Myanmar; verbatimLatitude: 16° 53' 19.18"; verbatimLongitude: 95° 52' 28.59"; recordedBy: Y. Ito; collectionID: MBK032409; institutionCode: TI
c. country: Myanmar; verbatimLatitude: 16° 53' 19.18"; verbatimLongitude: 95° 52' 28.59"; recordedBy: Y. Ito; collectionID: TI032666; institutionCode: TI
d. country: Thailand; locality: Chiang Mai Province; Juuigalion - canal, S of Chiang Mai; verbatimLatitude: 20° 11' N; verbatimLongitude: 99° 46' E; eventDate: Mar. 2, 1958; recordedBy: Y. Ito; collectionID: T. Sorensen et al. 1812; institutionCode: GH

Distribution: Worldwide.

Acorus gramineus Sol. ex Aiton, 1789

Materials

a. country: Myanmar; locality: NE Burma, Kambaiti (73 km E of Myitkyina); verbatimLatitude: 25° 24' 22" N; verbatimLongitude: 98° 8' 39" E; eventDate: Apr. 17, 1905; recordedBy: Y. Ito; collectionID: R. Malaise 85; institutionCode: GH
b. country: Myanmar; locality: North triangle (Hbinlum) 3000'; verbatimLatitude: 20° 21' N; verbatimLongitude: 100° 4' E; eventDate: Apr. 30, 1953; recordedBy: Y. Ito; collectionID: F. Kingdon-Ward 20756; institutionCode: GH
c. country: Myanmar; locality: Kachin division, Sumprabum Sub-Division, eastern approaches from Sumprabum to Kumon range.; verbatimLatitude: 26° 40' N; verbatimLongitude: 97° 20' E; eventDate: Mar. 1, 1962; recordedBy: Y. Ito; collectionID: J. Keenan, U. Tun Aung, U. Tha Hla 3815; institutionCode: GH
d. country: Thailand; locality: Chiang Mai Province; Muung District, Doi Sutap-Pui National Park, E side; verbatimLatitude: 18° 48' 16" N; verbatimLongitude: 98° 54' 56" E; eventDate: Apr. 18, 1990; recordedBy: Y. Ito; collectionID: J.F. Maxwell 90-429; institutionCode: GH
e. country: Thailand; locality: Chiang Mai Province; Doi Sutap-Pui National Park, CXU observation area; verbatimLatitude: 18° 48' 16" N; verbatimLongitude: 98° 54' 56" E; eventDate: Jan. 7, 1993; recordedBy: Y. Ito; collectionID: J.F. Maxwell 93-008; institutionCode: GH
f. country: Thailand; locality: Lampoon Province; Mae Tah District, Doi Kuhn Dehn National Park, stream above Pah Dtoop Fall; verbatimLatitude: 18° 30' 25" N; verbatimLongitude: 99° 16' 11" E; eventDate: Apr. 30, 1994; recordedBy: Y. Ito; collectionID: J.F. Maxwell 94-547; institutionCode: GH

g. country: Thailand; locality: Lampang Province; Muang Bahn District, Jae Sawn National Park, Bah Wiang village area; verbatimLatitude: 19° 9' 39" N; verbatimLongitude: 99° 23' 45" E; eventDate: Feb. 15, 1996; recordedBy: Y. Ito; collectionID: J.F. Maxwell 96-227; institutionCode: GH
h. country: Thailand; locality: Chiang Mai Province; Wiong Bah bao District, Kuhn Jae (Chae) national park; verbatimLatitude: 19° 10' 4" N; verbatimLongitude: 99° 23' 40" E; eventDate: Apr. 2, 1998; recordedBy: Y. Ito; collectionID: J.F. Maxwell 98-362; institutionCode: GH

Distribution: ?Cambodia, India (north), Japan, Korea, ?Laos, Myanmar, ?Philippines, Thailand, ?Vietnam.

Family Araceae

Subfamily Aroideae

Genus *Cryptocoryne* Fisch. ex Wydl., 1830

Cryptocoryne albida Prain, 1900

Materials

a. country: Thailand; locality: Phang Nga province; Sri Phang Nga Natl. Park; verbatimLatitude: 8° 0' N; verbatimLongitude: 98° 28' E; eventDate: Dec. 11, 2003; recordedBy: Y. Ito; collectionID: A.S. Barfod et al. 557; institutionCode: AAU
b. country: Thailand; locality: Ranawng; verbatimLatitude: 10° 7' N; verbatimLongitude: 98° 52' E; eventDate: Jan. 30, 1958; recordedBy: Y. Ito; collectionID: N/A 855; institutionCode: GH
c. country: Thailand; locality: Phetchaburi, Amphoe kaeng Krachan, National Park.; verbatimLatitude: 12° 51' N; verbatimLongitude: 99° 18' E; eventDate: Dec. 12, 2002; recordedBy: Y. Ito; collectionID: D. J. Middleton et al. 1589; institutionCode: GH
d. country: Thailand; locality: Surat Thani, phanom, Khao Sok National Park.; verbatimLatitude: 8° 55' N; verbatimLongitude: 98° 31' E; eventDate: Jan. 1, 2006; recordedBy: Y. Ito; collectionID: D. J. Middleton et al. 3992; institutionCode: GH

Distribution: ?Myanmar, Thailand.

Cryptocoryne cordata Griff., 1850

Materials

a. country: Thailand; locality: Narathiwat Province; Paa Ye, Su Ngi Paadee; verbatimLatitude: 6° 8' 11" N; verbatimLongitude: 101° 54' 38" E; eventDate: Apr. 14, 1988; recordedBy: Y. Ito; collectionID: C. Niyomdham & W. Ueachirakan 1820; institutionCode: AAU

b. country: Thailand; locality: Narathiwat Province; Freshwater swamp-forest S of Narathiwat; verbatimLatitude: 6° 30' N; verbatimLongitude: 101° 45' E; eventDate: Mar. 8, 1974; recordedBy: Y. Ito; collectionID: K. Larsen & S.S. Larsen 33077; institutionCode: AAU

Distribution: Malaysia (Peninsular), Thailand.

Cryptocoryne crispatula Engl., 1920

Materials

a. country: Thailand; locality: Kanchanaburi Province; Southwest District, Pompee village ner Khwae Noi river, E of Sanghkla; verbatimLatitude: 14° 1' 14" N; verbatimLongitude: 99° 19' 55" E; eventDate: Mar. 25, 1968; recordedBy: Y. Ito; collectionID: C.F. van Beusekom, C. Phengkhlai 89; institutionCode: AAU
b. country: Thailand; locality: Mae Hong Song, Muang District, Zuza Waterfalls, Lum Nam Pai Wildlife Sanctuary; verbatimLatitude: 19° 28' 29" N; verbatimLongitude: 98° 7' 36" E; eventDate: Dec. 15, 2007; recordedBy: Y. Ito; collectionID: HN8405; institutionCode: TI
c. country: Thailand; locality: Mae Hong Song, Muang District, Pha Waterfalls, Tham Pla-Namtok Pha Sua Natl Park.; verbatimLatitude: 19° 28' N; verbatimLongitude: 98° 7' E; eventDate: Dec. 15, 2007; recordedBy: Y. Ito; collectionID: HN8436; institutionCode: TI
d. country: Myanmar; locality: Kachin State; between Khalone Village and Shinbwiyang; verbatimLatitude: 26° 56' N; verbatimLongitude: 96° 52' E; eventDate: Dec. 5, 2005; recordedBy: Y. Ito; collectionID: Murata et al. 041626; institutionCode: TI
e. country: Myanmar; locality: Kachin State; between Khalone Village and Shinbwiyang; verbatimLatitude: 26° 40' 29" N; verbatimLongitude: 96° 16' 33" E; eventDate: Dec. 5, 2005; recordedBy: Y. Ito; collectionID: Murata et al. 040869; institutionCode: TI

Distribution: Bangradesh, Cambodia, China, Laos, Myanmar, Thailand, Vietnam.

Cryptocoryne cruddasiana Prain, 1900

Materials

a. country: Myanmar; locality: S. ? G. Gumfrabum 1000' - 1500'; eventDate: Dec. 19, 1953; recordedBy: Y. Ito; collectionID: F. Kingdon Ward 21712; institutionCode: GH
b. country: Myanmar; locality: Kachin State; between Khalone Village and Shinbwiyang; verbatimLatitude: 26° 40' 50" N; verbatimLongitude: 96° 15' 20" E; eventDate: Dec. 5, 2005; recordedBy: Y. Ito; collectionID: Murata et al. 041201; institutionCode: TI

Distribution: Myanmar, ?Thailand.

Genus *Pistia* L., 1753

Pistia stratiotes L., 1753

Material

a. country: Thailand; verbatimLocality: Bangkok; eventDate: Jul. 16, 1966; recordedBy: Y. Ito; collectionID: K. Larsen 446; institutionCode: AAU

Distribution: Worldwide (mainly tropics).

Subfamily Lemnoidea

Genus *Landoltia* Les & D.J. Crawford, 1999

Landoltia punctata (G. Mey.) Les & D.J. Crawford, 1999

Material

a. country: Myanmar; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; institutionCode: TI; collectionCode: Tanaka et al. 080648

Distribution: Worldwide.

Genus *Lemna* L., 1753

Lemna aequinoctialis Welw., 1859

Material

a. country: Vietnam; locality: Kontum Province; Ngoc Linh mountain, Ngoc Linh village.; verbatimLatitude: 14° 20' N; verbatimLongitude: 107° 59' E; eventDate: Apr. 4, 1995; recordedBy: Y. Ito; collectionID: L. Averyanov et al. VH1199; institutionCode: AAU

Distribution: Bangladesh, China (nationwide), India (nationwide), Japan, Myanmar, Nepal, Pakistan, Thailand; Africa; Oceania; N. America; S. America.

Lemna trisulca L., 1753

Material

a. country: Myanmar; locality: Shan State; Inlay lake, Nyanug She Township; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080649; institutionCode: TI

Distribution: Bangladesh, China (Northern, Western, Southern [Taiwan, Yunnan]), India (Eastern, Northern), Indonesia (New Guinea), Japan, Malaysia (Sumatra), Myanmar, Papua New guinea, Pakistan, Philippines; Europe; Oceania; N. America; S. America.

Genus *Spirodela* Schleid., 1839

Spirodela polyrrhiza (L.) Schleid., 1839

Material

a. country: Myanmar; locality: Shan State; Inlay lake, Nyanug She Township; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080648; institutionCode: MBK

Distribution: Bangladesh, China (nationwide), India (nationwide), Indonesia (Java, Sumatra, Sulawesi), Japan, Malaysia (Peninsular), Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Thailand.

Genus *Wolffia* Horkel ex Schleid., 1844

Wolffia globosa (Roxb.) Hartog & Plas, 1970

Distribution: Bangladesh, ?Cambodia, India (nationwide), ?Indonesia, Japan, ?Laos, ?Malaysia, ?Myanmar, Nepal, Pakistan, Papua New Guinea, ?Philippines, Sri Lanka, Thailand, ?Vietnam; introduced in Americas.

Order Alismatales

Family Alismataceae

Genus *Alisma* L., 1753

Alisma plantago-aquatica L., 1753

Materials

a. country: Myanmar; locality: Mandalay Division; Pyin U Lwin (Maymyo); eventDate: May 1, 1932; recordedBy: Y. Ito; collectionID: F. G. Dickason 5798; institutionCode: GH
b. country: Myanmar; locality: Shan State, Kalow; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080047; institutionCode: TI
c. country: Myanmar; locality: Shan State; Kalow; eventDate: May 1, 1932; recordedBy: Y. Ito; collectionID: F. G. Dickason 5743; institutionCode: GH
d. country: Myanmar; locality: Shan State; Kalow; eventDate: May 8, 1931; recordedBy: Y. Ito; collectionID: F. G. Dickason; institutionCode: GH
e. country: Thailand; locality: Chiang Mai; above Bong Lom Tang (Karen) village, mae Win Subdistrict; eventDate: Mar. 21, 2003; recordedBy: Y. Ito; collectionID: J.F. Maxwell 03-55; institutionCode: GH
f. country: Thailand; locality: Chiang Mai Province; between Ban Bo Luang and Mae Sariang; eventDate: Jun. 13, 1968; recordedBy: Y. Ito; collectionID: C.F. van Beusekom, C. Phengkhlai 1200; institutionCode: AAU

g. country: Thailand; locality: Chiang Mai Province; Hod District, Mai Muang Nao Arboretum, Ban Mae Sanam Mai, Baw Salee Subdistrict, 53 km Hod - Mae Sariang road (hw. 108); eventDate: Apr. 11, 2001; recordedBy: Y. Ito; collectionID: W. Sankamethawee 151; institutionCode: BKF
h. country: Thailand; locality: Mae Hong Son Province; Mae Sariung, Ban Papae; verbatimLatitude: 18° 54' N; verbatimLongitude: 98° 8' E; eventDate: Feb 2, 1969; recordedBy: Y. Ito; collectionID: T. Leiitinand e Sa-nga 10671; institutionCode: AAU

Distribution: China (North-Eastern, North-Western, South [Yunnan]), Japan, Myanmar, Nepal, Thailand; Europe; Oceania; N. America.

Genus *Caldesia* Parl., 1860

Caldesia parnassifolia (Bassi ex L.) Parl., 1858

Materials

a. country: Laos; locality: Savannaket Province; Nakai Plateau, Theun Douan lake, near Phong Sa Vahn resettlement village.; verbatimLatitude: 16° 34' 10" N; verbatimLongitude: 104° 44' 54" E; eventDate: May 3, 2007; recordedBy: Y. Ito; collectionID: J.F. Maxwell 07-305; institutionCode: GH
b. country: Myanmar; locality: Shan State; Taunggyi; verbatimLatitude: 20° 47' 7" N; verbatimLongitude: 97° 2' 6" E; eventDate: May 1, 1938; recordedBy: Y. Ito; collectionID: F. G. Dickason 9370; institutionCode: GH
c. country: Myanmar; locality: Shan State, Pindaya; verbatimLatitude: 20° 56' 21" N; verbatimLongitude: 96° 39' 54" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080624 #1; institutionCode: TI
d. country: Myanmar; locality: Shan State, Pindaya; verbatimLatitude: 20° 56' 21"; verbatimLongitude: 96° 39' 54" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080624 #2; institutionCode: TI

Distribution: Bangladesh, China (North-Eastern, South [Yunnan]), Japan, India (North, South, West), Indonesia (Sulawesi, New Guinea), Laos, Myanmar, Nepal, Papua New guinea, Thailand, ?Vietnam; Africa; Europe; Oceania.

Notes: Myanmar (Ito et al. 2009).

Genus *Limnocharis* Bonpl., 1808

Limnocharis flava (L.) Buchenau, 1868

Materials

a. country: Myanmar; locality: Rangoon.; verbatimLatitude: 16° 49' 37" N; verbatimLongitude: 96° 8' 58" E; eventDate: Mar. 10, 1957; recordedBy: Y. Ito; collectionID: F. G. Dickason 6666; institutionCode: GH
b. country: Myanmar; locality: Rakhine State; Bago Division; verbatimLatitude: 18° 49' 44" N; verbatimLongitude: 95° 18' 6" E; eventDate: Dec. 7, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080766; institutionCode: MBK

c. country: Thailand; locality: Chiang Mai; verbatimLatitude: 19° 23' N; verbatimLongitude: 99° 10' E; eventDate: Feb. 14, 1958; recordedBy: Y. Ito; collectionID: Kau Cloi 731; institutionCode: AAU
d. country: Thailand; locality: Sattalip, Taong Grang; verbatimLatitude: 12° 43' N; verbatimLongitude: 100° 56' E; eventDate: Jan. 24, 1969; recordedBy: Y. Ito; collectionID: J.F. Maxwell; institutionCode: AAU
e. country: Thailand; locality: Trang Province: Muang District; Kaochong Park; verbatimLatitude: 7° 33' 53" N; verbatimLongitude: 99° 36' 37" E; eventDate: Feb. 3, 1985; recordedBy: Y. Ito; collectionID: P. Sirirugsa 990; institutionCode: AAU
f. country: Thailand; locality: Trang Province; Muang District, Kao Chong Park.; verbatimLatitude: 7° 33' 53" N; verbatimLongitude: 99° 36' 37" E; eventDate: Oct. 31, 1984; recordedBy: Y. Ito; collectionID: P. Sirirugsa 939; institutionCode: GH
g. country: Thailand; locality: Chiang Mai Province; 30 km SW of Chiengmai.; verbatimLatitude: 19° 11' N; verbatimLongitude: 98° 4' E; eventDate: Nov. 4, 1958; recordedBy: Y. Ito; collectionID: No. 6043; institutionCode: GH
h. country: Thailand; locality: Petchabury; verbatimLatitude: 13° 24' 30" N; verbatimLongitude: 99° 48' 44" E; eventDate: Nov. 14, 2012; recordedBy: Y. Ito; collectionID: YI1710; institutionCode: BKF

Distribution: Native to Americas; naturalized to tropical Asia.

Genus *Sagittaria* L., 1753

Sagittaria guayanensis Humb., 1815

Materials

a. country: Thailand; locality: Pathum Thani Province, Rangsit; verbatimLatitude: 13° 59' 17" N; verbatimLongitude: 100° 37' 59" E; eventDate: Aug. 25, 1974; recordedBy: Y. Ito; collectionID: S. Sripen s.n.; institutionCode: BKF
b. country: Thailand; locality: Mae Hong Son Province; verbatimLatitude: 19° 15' N; verbatimLongitude: 98° E; eventDate: Sep. 9, 1974; recordedBy: Y. Ito; collectionID: K. Larsen & S.S. Larsen 34312; institutionCode: BKF
c. country: Thailand; locality: Mae Hong Son Province; verbatimLatitude: 19° 15' N; verbatimLongitude: 98° E; eventDate: Sep. 10, 1974; recordedBy: Y. Ito; collectionID: K. Larsen & S.S. Larsen 34375; institutionCode: BKF
d. country: Thailand; locality: Chiang Mai; Doi Lodge; verbatimLatitude: 19° 18' N; verbatimLongitude: 99° 10' E; eventDate: Apr. 15, 1958; recordedBy: Y. Ito; collectionID: No. 2742; institutionCode: GH

Distribution: Bangladesh, ?Cambodia, China (Central, South), India (nationwide), Indonesia (Java, Sumatra, Sulawesi), Malaysia (Peninsular), Nepal, Thailand, ? Vietnam.

Sagittaria trifolia L., 1753

Materials

a. country: Myanmar; locality: Shan State; Taungyi; verbatimLatitude: 20° 47' N; verbatimLongitude: 97° 2' E; eventDate: May. 3, 1933; recordedBy: Y. Ito; collectionID: F. G. Dickason 5846; institutionCode: GH
b. country: Thailand; locality: Chiang Mai; 15 km N of Chiang Mai; verbatimElevation: 18° 55' N; verbatimLatitude: 98° 57' E; eventDate: Aug. 11, 1958; recordedBy: Y. Ito; collectionID: Kai Larsen 6057; institutionCode: GH
c. country: Thailand; locality: Chiang Mai Province; Phek Khaeng Kai; verbatimLatitude: 18° 47' 30" N; verbatimLongitude: 98° 57' 39" E; eventDate: Feb. 20, 1991; recordedBy: Y. Ito; collectionID: R. Pooma 91033; institutionCode: GH
d. country: Thailand; locality: Chiang Mai; Mae Sanam Mai village, Baw Sahlee subdistrict; verbatimLatitude: 18° 58' 44" N; verbatimLongitude: 98° 56' 3" E; eventDate: Jul. 2, 2000; recordedBy: Y. Ito; collectionID: J.F. Maxwell 00-307; institutionCode: GH
e. country: Thailand; locality: Chiang Mai; Mae Ria District, Doi Suthep-Pui National Park, N side; verbatimLatitude: 18° 49' 28" N; verbatimLongitude: 98° 53' 24" E; eventDate: Feb. 20, 1990; recordedBy: Y. Ito; collectionID: J.F. Maxwell 90-216; institutionCode: GH
f. country: Myanmar; locality: Shan State; Taungyi, Namkok; eventDate: May. 1, 1938; recordedBy: Y. Ito; collectionID: F. G. Dickason 9405; institutionCode: GH
g. country: Myanmar; locality: Shan State; Inle lake; eventDate: May. 1, 1938; recordedBy: Y. Ito; collectionID: F. G. Dickason 7865; institutionCode: GH
h. country: Myanmar; locality: Shan State, Kalow; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080046; institutionCode: TI
i. country: Myanmar; locality: Shan State, Pindaya; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080623; institutionCode: TI
j. country: Thailand; locality: Chiang Mai; Mai Muang Nao Arboretum, Bam Mae Sanam Mai, Baw Salee Subdistrict; verbatimLatitude: 18° 9' 41" N; verbatimLongitude: 98° 16' 54" E; eventDate: Apr. 11, 2001; recordedBy: Y. Ito; collectionID: W. Sankamethawee 150; institutionCode: GH
k. country: Thailand; locality: Chiang Mai Province; Hot District; Maesanaam Pine Inprovement Center; verbatimLatitude: 18° 11' N; verbatimLongitude: 98° 36' E; eventDate: Jul. 8, 1995; recordedBy: Y. Ito; collectionID: R. Pooma et al. 1032; institutionCode: BKF
l. country: Thailand; locality: Chiang Mai Province; Om-koi; eventDate: Jul. 20, 1987; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 6277; institutionCode: BKF

Distribution: Bangladesh, Bhutan, China (nationwide), India (nationwide), Indonesia (Borneo, Java, Sulawesi), Japan, Malaysia (Peninsular), Myanmar, Nepal, Pakistan, Philippines, Thailand; Oceania.

Family Hydrocharitaceae

Genus *Blyxa* Noronha ex Thouars, 1806

Blyxa aubertii Rich., 1812

Materials

a. country: Myanmar; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; recordedBy: Y. Ito; collectionID: MBK041203; institutionCode: TI
b. country: Thailand; locality: Trat Province; 20 km W of Trat; verbatimLatitude: 12° 30' N; verbatimLongitude: 102° 20' E; eventDate: Aug. 30, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 32232; institutionCode: AAU
c. country: Thailand; locality: Trat Province; 18 km W of Trat; verbatimLatitude: 12° 40' N; verbatimLongitude: 102° 16' E; eventDate: Oct. 23, 1972; recordedBy: Y. Ito; collectionID: J.F. Maxwell 72-540; institutionCode: AAU
d. country: Thailand; locality: Chantaburi province; Plain of Makam; verbatimLatitude: 12° 41' N; verbatimLongitude: 102° 15' E; eventDate: Aug. 22, 1966; recordedBy: Y. Ito; collectionID: K. Larsen et al. 1667; institutionCode: AAU
e. country: Thailand; locality: Rayong Province; Ban phe; verbatimLatitude: 12° 40' N; verbatimLongitude: 101° 25' E; eventDate: Dec. 16, 1974; recordedBy: Y. Ito; collectionID: R. Geesik & P. Hiepko 7872; institutionCode: AAU
f. country: Thailand; locality: Chantaburi Province; S of Mekam rubber plantation; verbatimLatitude: 12° 35' N; verbatimLongitude: 102° 20' E; eventDate: Aug. 22, 1966; recordedBy: Y. Ito; collectionID: K. Larsen et al. 1744; institutionCode: AAU
g. country: Thailand; locality: Narathiwat Province; Tak bai; verbatimLatitude: 6° 15' 34" N; verbatimLongitude: 102° 0' 16" E; eventDate: Jan. 11, 1986; recordedBy: Y. Ito; collectionID: C. Cniyomdham 1117; institutionCode: AAU
h. country: Thailand; locality: Phangnga Province; Takuapah District; 15 km N of Takuapah; verbatimLatitude: 8° 53 'N; verbatimLongitude: 98° 21' E; eventDate: Jul. 14, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 30970; institutionCode: AAU
i. country: Vietnam; locality: Lao Cai Province; Than Uyen District, Municipality Ho Mit; verbatimLatitude: 22° 6' N; verbatimLongitude: 103° 52' E; eventDate: May. 21, 1999; recordedBy: Y. Ito; collectionID: NTH2708; institutionCode: AAU

Distribution: Bangladesh, China (Southern), India (Western, Central, Southern), Indonesia (Java, Sumatra), Japan, Malaysia (Peninsular), Myanmar, ?Nepal, Papua New guinea, Sri Lanka, Thailand, Vietnam.

Blyxa echinosperma (C.B. Clarke) Hook. f., 1888

Materials

a. country: Myanmar; locality: Kachin State; verbatimLatitude: 26° 40' 50" N; verbatimLongitude: 96° 15' 20" E; eventDate: Dec. 10, 2005; recordedBy: Y. Ito; collectionID: J. Murata et al. 040940; institutionCode: TI
b. country: Thailand; locality: Phangnga Province, Khuraburi, Ko Phrathong; verbatimLatitude: 9° 11' 45" N; verbatimLongitude: 98° 24' 30" E; eventDate: Aug. 24, 2005; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 15062; institutionCode: BKF

c. country: Thailand; locality: Chiang Mai; near Angka Noi village, N side of the main road, Doi Inthanon.; verbatimLatitude: 18° 35' 32" N; verbatimLongitude: 98° 29' 12" E; eventDate: May. 8, 1988; recordedBy: Y. Ito; collectionID: N. Fukuoka T-62538; institutionCode: TI

Distribution: Bangladesh, China (Central, Southern), India (Western, Central, Southern), Indonesia (Java), Japan, Malaysia (Borneo, Peninsular), Myanmar, ?Nepal, Papua New Guinea, Philippines, Thailand, Sri Lanka; Oceania.

Blyxa japonica (Miq.) Maxim. ex Asch. & Gürke, 1889

Materials

a. country: Cambodia; locality: Kampot Province; Kampot District, S summit of Phnom Bokor, Bokor village; verbatimLatitude: 10° 37' 4" N; verbatimLongitude: 104° 1' 41" E; eventDate: Jun. 18, 1997; recordedBy: Y. Ito; collectionID: McDonald et al. 5793; institutionCode: AAU
b. country: Thailand; locality: Naratiwat Province; Sungeipadi District; verbatimLatitude: 6° 29' 4" N; verbatimLongitude: 101° 49' 25" E; eventDate: Mar. 28, 1987; recordedBy: Y. Ito; collectionID: J.F. Maxwell 87-265; institutionCode: GH
c. country: Thailand; locality: E Si Saket Province; between Uthum Phon Phisai and Si Saket; verbatimLatitude: 15° 7' N; verbatimLongitude: 104° 15' E; eventDate: Oct. 7, 1984; recordedBy: Y. Ito; collectionID: G. Murata, C. Phengklai, S. Mitsuta, H. Nagamasu, N. Nantasan T-49920; institutionCode: GH
d. country: Thailand; locality: Kanchanaburi Province; Thong Pha Phum District, Rintin Forest; verbatimLatitude: 14° 50' 9" N; verbatimLongitude: 98° 44' 21" E; eventDate: Nov. 6, 1979; recordedBy: Y. Ito; collectionID: T. Shimizu et al. T-21941; institutionCode: AAU
e. country: Thailand; locality: Trat Province; 20 km W of Trat; verbatimLatitude: 12° 30' N; verbatimLongitude: 102° 20' E; eventDate: Aug. 30, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 32234; institutionCode: AAU
f. country: Thailand; locality: Nakhon Ratchasima Province; Khao yai Natl Park, Khao Laem; verbatimLatitude: 14° 45' N; verbatimLongitude: 102° E; eventDate: Oct. 19, 1969; recordedBy: Y. Ito; collectionID: C.F. van Beusekom, C. Phengkhlai 1769; institutionCode: AAU
g. country: Thailand; locality: Narathiwat Province; Tak bai; verbatimLatitude: 6° 14' 57" N; verbatimLongitude: 102° 0' 6" E; eventDate: Jan. 11, 1986; recordedBy: Y. Ito; collectionID: C. Cniyomdham 1116; institutionCode: AAU
h. country: Thailand; locality: Chantaburi Province; verbatimLatitude: 12° 57' N; verbatimLongitude: 102° E; eventDate: Oct. 17, 1971; recordedBy: Y. Ito; collectionID: J.F. Maxwell 71-576; institutionCode: AAU
i. country: Thailand; locality: Saraburi Province; Salum Lake; verbatimLatitude: 14° 32' N; verbatimLongitude: 101° 2' E; eventDate: Oct. 14, 1973; recordedBy: Y. Ito; collectionID: J.F. Maxwell 73-504; institutionCode: AAU
j. country: Thailand; locality: Pha Team National Park, Ubon Ratchathani; verbatimLatitude: 15° 24' 10" N; verbatimLongitude: 105° 29' 23" E; recordedBy: Y. Ito; collectionID: Nr. Tanaka; institutionCode: TNS

Distribution: Bangladesh, China (nationwide), Cambodia, India (Western [Meghalaya]), Indonesia (Boreo, New Guinea, Sulawesi), Japan, Malaysia (Peninsular), Myanmar, Papua New Guinea, Thailand.

Blyxa quadricostata den Hartog, 1973

Materials

Other materials:

a. country: Thailand; locality: Naratiwat Province; Sungei Padi District, Sungei Padi; verbatimLatitude: 6° 7' 27" N; verbatimLongitude: 101° 54' 47" E; eventDate: Mar. 28, 1987; recordedBy: Y. Ito; collectionID: J.F. Maxwell 87-267; institutionCode: GH
b. country: Thailand; locality: Loei Province; Phu Kradung; verbatimLatitude: 17° 16' 54" N; verbatimLongitude: 101° 9' 31" E; eventDate: Nov. 29, 1965; recordedBy: Y. Ito; collectionID: M. Tagawa et al. T-781; institutionCode: AAU
c. country: Thailand; locality: Loei Province; Phu Kradung; verbatimLatitude: 16° 53' N; verbatimLongitude: 101° 47' E; eventDate: Nov. 2, 1984; recordedBy: Y. Ito; collectionID: G. Murata et al. T-42713; institutionCode: AAU
d. country: Thailand; locality: Loei Province; Phu Kradung District, Phu Kradung Natl park; verbatimLatitude: 17° 16' 54" N; verbatimLongitude: 101° 9' 31" E; eventDate: Nov. 15, 1979; recordedBy: Y. Ito; collectionID: T. Shimizu et al. T-22824; institutionCode: AAU
e. country: Thailand; locality: Loei Province; Phu Kradung District, Phu Kradung Natl park; verbatimLatitude: 17° 16' 54" N; verbatimLongitude: 101° 9' 31" E; eventDate: Mar. 9, 1979; recordedBy: Y. Ito; collectionID: P.J. O'Connor & C. Niyondham 15711; institutionCode: AAU
f. country: Thailand; locality: Loei Province; Phu Kradung; verbatimLatitude: 17° 17' N; verbatimLongitude: 101° 10' E; eventDate: Mar. 18, 1958; recordedBy: Y. Ito; collectionID: Th. Sorensen 2211; institutionCode: AAU
g. country: Thailand; locality: Loei Province; Phu Kradung, S. of Loi; verbatimLatitude: 16° 53' N; verbatimLongitude: 101° 53' E; eventDate: Nov. 7, 1970; recordedBy: Y. Ito; collectionID: Ch. Charoenphol et al. 4783; institutionCode: AAU

Holotype:

a. country: Thailand; locality: Loei Province; Phu Kradung, Mie ron Pond; verbatimLatitude: 16° 52' N; verbatimLongitude: 101° 52' E; eventDate: Dec. 25, 1971; recordedBy: Y. Ito; collectionID: C.F. van Beusekom et al. 4602; institutionCode: MO

Distribution: Thailand.

Genus *Egeria* Planch., 1849

Egeria densa (Planch.) Casp., 1857

Material

a. country: Thailand; locality: Bung Bonapet Nonhunting Area; verbatimLatitude: 15° 41' 40" N; verbatimLongitude: 100° 16' 03" E; eventDate: Nov. 16, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1733; institutionCode: BKF

Distribution: Native to South America.

Genus *Elodea* Michx., 1803

Elodea nuttallii (Planch.) H. St. John, 1920

Distribution: Native to North America.

Genus *Hydrilla* Rich., 1814

Hydrilla verticillata (L. f.) Royle, 1839

Materials

a. country: Myanmar; stateProvince: Kachin; verbatimLocality: Tanaing Township; verbatimLatitude: 26° 22' 22" N; verbatimLongitude: 96° 43' E; eventDate: Sep. 15, 2005; recordedBy: Y. Ito; collectionID: MBK040056; institutionCode: TI
b. country: Myanmar; stateProvince: Shan State; locality: Pindaya; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; recordedBy: Y. Ito; collectionID: MBK080634; institutionCode: TI
c. country: Myanmar; locality: Mandalay Division; verbatimLatitude: 22° 00' 29" N; verbatimLongitude: 96° 28' 06" E; eventDate: Jan. 11, 2002; recordedBy: Y. Ito; collectionID: Tanaka et al. 021712; institutionCode: TI
d. country: Myanmar; locality: Mandalay Division; verbatimLatitude: 20° 48' N; verbatimLongitude: 95° 15' E; eventDate: Mar. 4, 2003; recordedBy: Y. Ito; collectionID: Tanaka et al. 028704; institutionCode: TI
e. country: Myanmar; locality: Bago Division; verbatimLatitude: 18° 42' 22" N; verbatimLongitude: 95° 5' 59" E; eventDate: Dec. 9, 2006; recordedBy: Y. Ito; collectionID: Sugawara et al. 036433; institutionCode: TI
f. country: Myanmar; locality: Kachin State; verbatimLatitude: 26° 6' 34" N; verbatimLongitude: 96° 42' 58" E; eventDate: Sep. 19, 2005; recordedBy: Y. Ito; collectionID: Tanaka et al. 040483; institutionCode: TI
g. country: Myanmar; locality: Shan State; verbatimLatitude: 20° 35' 41" N; verbatimLongitude: 96° 31' 46" E; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080050; institutionCode: TI
h. country: Myanmar; locality: Shan State; verbatimLatitude: 20° 35' 41" N; verbatimLongitude: 96° 31' 46" E; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080057; institutionCode: TI
i. country: Myanmar; locality: Shan State; verbatimLatitude: 20° 27' 28" N; verbatimLongitude: 96° 50' 37" E; eventDate: Dec. 4, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080663; institutionCode: TI
j. country: Myanmar; locality: Taunngyi; verbatimLatitude: 20° 47' 14" N; verbatimLongitude: 97° 2' 7" E; eventDate: Jan. 5, 1938; recordedBy: Y. Ito; collectionID: F.G. Dickason 9334; institutionCode: GH
k. country: Thailand; locality: Chiang Mai Province; Chiang Dao District; verbatimLatitude: 19° 28' 46" N; verbatimLongitude: 98° 54' 44" E; eventDate: Dec. 11, 1992; recordedBy: Y. Ito; collectionID: V.A. Sunthorn, P. Palee 101; institutionCode: GH
l. country: Thailand; verbatimLatitude: 13° 45' 10" N; verbatimLongitude: 100° 29' 45" E; recordedBy: Y. Ito; collectionID: T- 50413 [TI]; institutionCode: TI

m. country: Thailand; locality: Pha Team National Park, Ubon Ratchathani, Thailand; verbatimLatitude: 15° 24' 07" N; verbatimLongitude: 105° 29' 20" E; recordedBy: Y. Ito; collectionID: Tr. Tanaka; institutionCode: TNS
n. country: Thailand; locality: Hotel river Kwai, Kantchanabury; verbatimLatitude: 14° 1' 59" N; verbatimLongitude: 99° 31' 10" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1724; institutionCode: BKF

Distribution: Bangladesh, Bhutan, China (nationwide), Indonesia (nationwide), Japan, Malaysia (nationwide), Myanmar, Nepal, Pakistan, Papua New Guinea, Thailand, Sri Lanka.

Genus *Hydrocharis* L., 1753

Hydrocharis dubia (Blume) Backer, 1925

Materials

a. country: Thailand; locality: Ang Thong Province; Howa Pie; verbatimLatitude: 13° 54' N; verbatimLongitude: 100° 37' E; eventDate: Sep. 17, 1972; recordedBy: Y. Ito; collectionID: J.F. Maxwell 72-398; institutionCode: AAU
b. country: Thailand; locality: Saraburi Province; Muang District, Sahm Lahn forest; verbatimLatitude: 14° 31' 51" N; verbatimLongitude: 100° 54' 34" E; eventDate: Oct. 20, 1974; recordedBy: Y. Ito; collectionID: J.F. Maxwell 74-947; institutionCode: AAU
c. country: Thailand; verbatimLatitude: 13° 45' 10" N; verbatimLongitude: 100° 29' 45" E; recordedBy: Y. Ito; collectionID: 16322; institutionCode: BKF
d. country: Thailand; locality: Maha Sarakham; Bua Khaaw Morning Market; verbatimLatitude: 16° 11' N; verbatimLongitude: 103° 18' E; eventDate: Mar. 11, 1990; recordedBy: Y. Ito; collectionID: Mooly Widmer 0699; institutionCode: BKF

Distribution: China (nationwide), Indonesia (Java, New Guinea, Sulawesi), Japan, ? Myanmar, Papua New Guinea, Philippines, Thailand, ?Vietnam; Oceania.

Genus *Najas* L., 1753

Najas graminea Delile, 1813

Materials

a. country: Myanmar; locality: Shan State, Inle Lake; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080656; institutionCode: MBK
b. country: Thailand; locality: Mae Hong Son Province; verbatimLatitude: 19° 15' N; verbatimLongitude: 98° E; eventDate: Sep. 10, 1974; recordedBy: Y. Ito; collectionID: K. Larsen & S.S. Larsen KL34376; institutionCode: BKF
c. country: Thailand; locality: Pangnga Province; Kan bow koranee cascade; verbatimLatitude: 8° 25' N; verbatimLongitude: 98° 30' E; eventDate: May. 9, 1973; recordedBy: Y. Ito; collectionID: R. Geesink & T. Santisuk 5299; institutionCode: AAU
d. country: Thailand; locality: Petchabury; verbatimLatitude: 13° 30' 6" N; verbatimLongitude: 99° 47' 37" E; eventDate: Nov. 14, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1714; institutionCode: BKF

Distribution: Bangladesh, China (Central, Southern), India (Central, Southern), Indonesia (Java, New Guinea, Sumatra, Sulawesi), Japan, Myanmar, Nepal, Papua New Guinea, Philippines, Thailand, ?Vietnam; Africa; Oceania.

Najas indica (Willd.) Cham., 1829

Materials

a. country: Myanmar; verbatimLatitude: 16° 53' 19.18"; verbatimLongitude: 95° 52' 28.59"; recordedBy: Y. Ito; collectionID: MBK020915; institutionCode: TI
b. country: Myanmar; verbatimLatitude: 16° 53' 19.18"; verbatimLongitude: 95° 52' 28.59"; recordedBy: Y. Ito; collectionID: MBK036320; institutionCode: TI
c. country: Thailand; locality: Ubon Ratchathani Province; Kang Tana Natl park; verbatimLatitude: 15° 16' 26" N; verbatimLongitude: 105° 27' 31" E; eventDate: Aug. 22, 2001; recordedBy: Y. Ito; collectionID: R. Pooma et al. 2346; institutionCode: BKF
d. country: Thailand; locality: Chaiyaphum Province; Tunhamang; verbatimLatitude: 16° 20' N; verbatimLongitude: 101° 45' E; eventDate: Dec. 19, 1971; recordedBy: Y. Ito; collectionID: van Beusekom et al. 4245; institutionCode: BKF
e. country: Thailand; locality: Petchabury; verbatimLatitude: 13° 30' 6" N; verbatimLongitude: 99° 47' 37" E; eventDate: Nov. 14, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1713; institutionCode: BKF

Distribution: Bangladesh, India (Western, Central, Southern), Indonesia (Java, Sumatra, Sulawesi), Myanmar, Papua New Guinea, Sri Lanka, Thailand, Vietnam.

Najas marina L., 1753

Materials

a. country: Thailand; locality: Phatthalung Province; Thale noi Bord reservior; verbatimLatitude: 7° 44' N; verbatimLongitude: 100° 9' E; eventDate: Oct. 7, 2005; recordedBy: Y. Ito; collectionID: H.-J. Esser et al. 05-91; institutionCode: BKF
b. country: Thailand; locality: Phatthalung Province; Sea Thale Noi; verbatimLatitude: 7° 47' 9" N; verbatimLongitude: 100° 10' 4" E; eventDate: Oct. 7, 2005; recordedBy: Y. Ito; collectionID: Tillich et al. 5094; institutionCode: BKF
c. country: Thailand; locality: Khao San Yot Natl Park.; verbatimLatitude: 12° 14' 39" N; verbatimLongitude: 99° 55' 57" E; eventDate: Nov. 13, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1701; institutionCode: BKF

Distribution: Worldwide.

Najas tenuis Magnus, 1870

Materials

a. country: Myanmar; locality: Shan State; Naungkhio, Hsipaw Distr.; verbatimLatitude: 22° 37' 12" N; verbatimLongitude: 97° 17' E; eventDate: Oct. 1, 1939; recordedBy: Y. Ito; collectionID: F. G. Dickason 9565; institutionCode: GH
b. country: Myanmar; locality: Shan State, Inle Lake; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080642; institutionCode: TI

Distribution: India, Myanmar.

Notes: Fig. 3.

Figure 3.

Najas tenuis in Myanmar (3 DEC 2008). Credit: Y. Ito.

Genus *Nechamandra* Planch., 1849

Nechamandra alternifolia (Roxb.) Thwaites, 1864

Materials

a. country: Myanmar; locality: Pindaya, Shan State; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080635; institutionCode: MBK
b. country: Myanmar; locality: Kalow, Shan State; verbatimLatitude: 20° 35' 41" N; verbatimLongitude: 96° 31' 46" E; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080053; institutionCode: TI
c. country: Myanmar; locality: Kalow, Shan State; verbatimLatitude: 20° 35' 41" N; verbatimLongitude: 96° 31' 46" E; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080058; institutionCode: TI
d. country: Myanmar; locality: Kalow, Shan State; verbatimLatitude: 20° 35' 41" N; verbatimLongitude: 96° 31' 46" E; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080059; institutionCode: TI
e. country: Thailand; locality: Pathum Thani Province; along way to the young delta; verbatimLatitude: 14° 1' 34" N; verbatimLongitude: 100° 31' 29" E; eventDate: Jul. 30, 1973; recordedBy: Y. Ito; collectionID: G. Murata & N. Fukuoka T-17324; institutionCode: BKF

Distribution: Bangladesh, China (Southern), India (Eastern, Northern, Southern), Myanmar, Nepal, Sri Lanka, Thailand, Vietnam; Yemen, and Sudan.

Notes: Fig. 4.

Figure 4.

Nechamandra alternifolia (Hydrocharitaceae) (25 Nov. 2008). Credit: Y. Ito.

Myanmar (Ito et al. 2009); Thailand (Ito 2013b).

Genus *Ottelia* Pers., 1805

Ottelia alismoides (L.) Pers., 1805

Materials

a. country: Laos; locality: Vientine; verbatimLatitude: 17° 58' N; verbatimLongitude: 102° 36' E; eventDate: Dec. 18, 1957; recordedBy: Y. Ito; collectionID: T. Tsuyama L. 57001; institutionCode: TI
b. country: Myanmar; locality: Mandaley; verbatimLatitude: 21° 58' 30" N; verbatimLongitude: 96° 5' E; eventDate: Jan. 14, 1964; recordedBy: Y. Ito; collectionID: H. Kanai; institutionCode: TI
c. country: Myanmar; locality: Kachin State; verbatimLatitude: 26° 6' 34" N; verbatimLongitude: 96° 42' 58" E; eventDate: Sep. 19, 2005; recordedBy: Y. Ito; collectionID: TI040482; institutionCode: TI
d. country: Myanmar; locality: Kachin State; at the evening market of Tanaing, Hukaung Valley, Tanaing Township; verbatimLatitude: 26° 31' 20" N; verbatimLongitude: 96° 35' 9" E; eventDate: Sep. 20, 2005; recordedBy: Y. Ito; collectionID: TI040488; institutionCode: TI
e. country: Myanmar; locality: Mandalay Division; between Smithine town and Pinchar village, ca. 25 miles S of Mandalay; verbatimLatitude: 21° 29' 47" N; verbatimLongitude: 96° 4' 21" E; eventDate: Jun. 19, 2000; recordedBy: Y. Ito; collectionID: TI2026; institutionCode: TI

f. country: Thailand; locality: Chokchai, Nakhon Ratchasima, Thailand; verbatimLatitude: 14° 44' 30" N; verbatimLongitude: 102° 9' 41" E; recordedBy: Y. Ito; collectionID: Nr. Tanaka; institutionCode: TNS
g. country: Thailand; locality: Petchabury; verbatimLatitude: 13° 24' 30" N; verbatimLongitude: 99° 48' 44" E; eventDate: Nov. 14, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1707; institutionCode: BKF
h. country: Thailand; locality: Khuen Shinaga Natl Park.; verbatimLatitude: 14° 38' 8" N; verbatimLongitude: 98° 59' 52" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1726; institutionCode: BKF
i. country: Thailand; locality: Kantchanabury; verbatimLatitude: 14° 39' 21" N; verbatimLongitude: 98° 42' 27" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1731; institutionCode: BKF
j. country: Thailand; locality: Nongkhai Province; Bungkhla District, Ban Dong Mak Yang; verbatimLatitude: 18° 19' 59" N; verbatimLongitude: 103° 43' 39" E; eventDate: Aug. 27, 2001; recordedBy: Y. Ito; collectionID: R. Pooma, W.J.J.O. de Wilde, B.E.E. Duyfjes, V. Chamchumroon, K. Phattarahirankanok 2864; institutionCode: GH
k. country: Thailand; locality: Kanchanaburi Province; Thong Pha Phum District, Rintin Forest; verbatimLatitude: 14° 48' 34" N; verbatimLongitude: 98° 44' 41" E; eventDate: Nov. 6, 1979; recordedBy: Y. Ito; collectionID: T. Simizu, H. Toyokuni, H. Koyama, T. Yahara, C. Niyomdham T-21923; institutionCode: GH
l. country: Thailand; locality: Uthaithani Province; Larn Suk District, Huay Kha Kaeng Wildlife Sanctuary; verbatimLatitude: 15° 24' 30" N; verbatimLongitude: 100° 4' 35" E; eventDate: Nov. 11, 1979; recordedBy: Y. Ito; collectionID: T. Simizu, H. Toyokuni, H. Koyama, T. Yahara, C. Niyomdham T-22221; institutionCode: GH
m. country: Thailand; locality: Chainart Province; verbatimLatitude: 15° 14' N; verbatimLongitude: 100° 15' E; eventDate: Nov. 28, 1959; recordedBy: Y. Ito; collectionID: L.B. & E.C. Abbe, T. Smitinand, B. Rollet 9233; institutionCode: GH
n. country: Thailand; locality: Songkla Province; Haad Yai District, ban Koke Saht, W of Toong Loong; verbatimLatitude: 7° 0' 13" N; verbatimLongitude: 100° 27' 25" E; eventDate: Oct. 2, 1985; recordedBy: Y. Ito; collectionID: J.F. Maxwell 85-929; institutionCode: GH
o. country: Thailand; locality: Hue san - Chieing Rae; verbatimLatitude: 19° 54' 34" N; verbatimLongitude: 99° 49' 39" E; eventDate: Nov. 21, 1921; recordedBy: Y. Ito; collectionID: B. Hayata; institutionCode: TI

Distribution: Cambodia, India, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Thailand, Sri Lanka, Vietnam; Africa, Australia.

Ottelia cordata (Wall.) Dandy, 1934

Material

a. country: Myanmar; locality: Mandalay Division; ca. 3 miles from Kyauk Sei, Pyin U Lwin (May Myo); verbatimLatitude: 21° 36' N; verbatimLongitude: 96° 4' 6" E; eventDate: Mar. 16, 2003; recordedBy: Y. Ito; collectionID: N. Kuroiwa et al. 020926; institutionCode: TI

Distribution: ?Cambodia, China (Southern [Hainan]), Myanmar, ?Thailand.

Genus *Vallisneria* L., 1753

Vallisneria spiralis L., 1753

Materials

a. country: Myanmar; locality: Shan State; Inle Lake; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080653; institutionCode: MBK
b. country: Myanmar; locality: Kachin State; between Khalone and Shinbweyan; verbatimLatitude: 26° 40' 50" N; verbatimLongitude: 96° 15' 20" E; eventDate: Dec. 5, 2005; recordedBy: Y. Ito; collectionID: Murata et al.041208; institutionCode: TI
c. country: Myanmar; locality: Kachin State; between Shinbweyan and Tanain; verbatimLatitude: 26° 56' N; verbatimLongitude: 96° 52' E; eventDate: Feb. 16, 2007; recordedBy: Y. Ito; collectionID: Murata et al. 041622; institutionCode: TI

Distribution: Bangladesh, China, India (nationwide), Japan, Myanmar, Nepal, Pakistan, Sri Lanka.

Family Aponogetonaceae

Genus *Aponogeton* L. f., 1781

Aponogeton lakhonensis A. Camus, 1910

Materials

a. country: Myanmar; locality: Kachin State; between Takhet Village and Khalone Village, ca 10 mi E of Shinbwiyang; verbatimLatitude: 26° 38' 59" N; verbatimLongitude: 96° 20' 55" E; eventDate: Dec. 10, 2005; recordedBy: Y. Ito; collectionID: Tanaka et al. 040939; institutionCode: TI
b. country: Myanmar; locality: Kachin State; along the Ledo Rd between Shinbwiyang and Tanaing; verbatimLatitude: 26° 34' N; verbatimLongitude: 96° 30' E; eventDate: Feb. 16, 2007; recordedBy: Y. Ito; collectionID: Tanaka et al. 041619; institutionCode: TI
c. country: Thailand; locality: Lampang Province; verbatimLatitude: 18° 19' 24" N; verbatimLongitude: 99° 29' 29" E; eventDate: Sep. 1, 1926; recordedBy: Y. Ito; collectionID: V.N. Pak Kuap 1797; institutionCode: BKF

Distribution: Cambodia, China (Southern), India (Eastern [Assam, Darjeeling]), Indonesia (Sulawesi), Myanmar, Thailand, Vietnam.

Notes: Fig. 5.

Figure 5.
Aponogeton lakhonensis in Myanmar (10 Dec 2005). Credit: J. Murata.

Family Potamogetonaceae

Genus *Potamogeton* L., 1753

Potamogeton crispus L., 1753

Materials

a. country: Thailand; locality: Sagaing Division; Kalewa-Kalemyo; verbatimLatitude: 23° 12' 17" N; verbatimLongitude: 94° 11' 33" E; eventDate: Mar. 25, 1938; recordedBy: Y. Ito; collectionID: F. G. Dickason 7196; institutionCode: GH
b. country: Myanmar; locality: Sagaing Division; Kalewa-Kalemyo, shallow water, Alt. 600 ft.; verbatimLatitude: 23° 12' 17" N; verbatimLongitude: 94° 11' 33" E; eventDate: Mar. 26, 1938; recordedBy: Y. Ito; collectionID: F. G. Dickason 7204; institutionCode: GH

Distribution: Bangladesh, Bhutan, China (nationwide), India (nationwide), Japan, Korea, Laos, Malesia (Sumatra), Myanmar, Nepal, Pakistan, Vietnam; Worldwide.

Potamogeton distinctus A. Benn., 1904

Material

a. country: Thailand; locality: Khuen Shinaga Natl Park; Nearn Saran View point.; verbatimLatitude: 14° 44' 25" N; verbatimLongitude: 98° 49' 6" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1729; institutionCode: BKF

Potamogeton maackianus A Benn., 1904

Material

a. country: Myanmar; locality: Shan State; Kalow Village, Yae Aye Kan Dam,; verbatimLatitude: 20° 35' 41" N; verbatimLongitude: 96° 31' 46" E; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Nb. Tanaka et al. 080052; institutionCode: TI

Distribution: China (North-eastern, Central, Southern [Yunnan]), Japan, Indonesia (Sumatra), Myanmar, Philippines.

Potamogeton lucens L., 1753

Materials

a. country: Myanmar; locality: Shan State; naung Shwe, Inlay Lake; verbatimLatitude: 20° 36' N; verbatimLongitude: 96° 54' 44" E; eventDate: May. 2, 2005; recordedBy: Y. Ito; collectionID: K. Khaing 05153; institutionCode: TI
b. country: Myanmar; locality: Shan State, Pindaya, Inlay Lake; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Nb. Tanaka et al. 080630; institutionCode: TI
c. country: Myanmar; locality: Inle Lake, Shan State; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Nb. Tanaka et al. 080640; institutionCode: TI

Distribution: China (North-eastern, Central, Southern [Yunnan]), Japan, Myanmar, Nepal, Philippines; Europe.

Potamogeton nodosus Poir., 1816

Materials

a. country: Myanmar; locality: Sagaing Division; Shweuyaung; verbatimLatitude: 24° 31' 2" N; verbatimLongitude: 95° 23' 36" E; eventDate: May. 1, 1938; recordedBy: Y. Ito; collectionID: F. G. Dickason 9374; institutionCode: GH
b. country: Myanmar; locality: Mandalay Division; verbatimLatitude: 20° 48' N; verbatimLongitude: 95° 15' E; eventDate: Nov. 29, 2000; recordedBy: Y. Ito; collectionID: J. Murata et al. 020914; institutionCode: TI
c. country: Myanmar; locality: Chiang Mai Province; Chiang Dao District, Ban Bing kong, Bing Kong subdistrict, in the Bing (Ping) river; verbatimLatitude: 19° 36' 9" N; verbatimLongitude: 98° 55' 49" E; eventDate: Dec. 6, 1992; recordedBy: Y. Ito; collectionID: J.F. Maxwell 92-803; institutionCode: AAU
d. country: Thailand; locality: Chiang Mai; old Mae Ping (Bing) dam, along the Ping (Bing) river; verbatimLatitude: 19° 36' 9" N; verbatimLongitude: 98° 55' 49" E; eventDate: Jul. 6, 1995; recordedBy: Y. Ito; collectionID: P. Thavoeburum 1; institutionCode: GH
e. country: Thailand; locality: Chiang Mai; Ban Bing kong, Bing Kong subdistrict, in the Bing (Ping) river; verbatimLatitude: 19° 36' 9" N; verbatimLongitude: 98° 55' 49" E; eventDate: Dec. 6, 1992; recordedBy: Y. Ito; collectionID: J.F. Maxwell 92-605; institutionCode: GH
f. country: Thailand; locality: Chiang Mai Province; Mae Dtang District, in the Bing (Ping) river; verbatimLatitude: 19° 36' 9" N; verbatimLongitude: 98° 55' 49" E; eventDate: Dec. 11, 1992; recordedBy: Y. Ito; collectionID: J.F. Maxwell 92-832; institutionCode: AAU

g. country: Thailand; locality: Chiang Rai Province; Santonthong, Muang, Lampun; verbatimLatitude: 19° 37' 41" N; verbatimLongitude: 100° 4' 16" E; eventDate: Apr. 20, 1971; recordedBy: Y. Ito; collectionID: P. Karnchanomai s.n.; institutionCode: AAU

Distribution: Bangladesh, China (North-Eastern, Central [in part], Southern [Yunnan]), India (nationwide), Indonesia (New Guinea, Sumatra, Sulawesi), Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam; Africa, Europe, America.

Potamogeton octandrus Poir., 1816

Materials

a. country: Myanmar; locality: Chiang Mai Province; Haung Dong, route to Khan Waang; verbatimLatitude: 18° 42' 58" N; verbatimLongitude: 98° 55' 35" E; eventDate: Apr. 5, 1978; recordedBy: Y. Ito; collectionID: T. Smitinand s.n.; institutionCode: BKF
b. country: Thailand; locality: Kachin State; between Khalone Village and Shinbweyan; verbatimLatitude: 26° 40' 29" N; verbatimLongitude: 96° 16' 33" E; eventDate: Dec. 5, 2005; recordedBy: Y. Ito; collectionID: J. Murata et al. 040649; institutionCode: TI

Distribution: Bangladesh, Bhutan, China (nationwide), Japan, India (Northern, Eastern, Southern [in part]), Indonesia (Java), Myanmar, Nepal, Papua New Guinea, Thailand, Vietnam; Africa; Oceania.

Notes: Myanmar (Ito et al. 2009); Thailand (Ito 2013b).

Potamogeton wrightii Morong, 1886

Materials

a. country: Myanmar; locality: Mandalay Division; Kyet Mank Taung Dam, Kyaukpadaung Township, Popa; verbatimLatitude: 20° 48' N; verbatimLongitude: 95° 15' E; eventDate: Mar. 4, 2003; recordedBy: Y. Ito; collectionID: Kuroiwa et al. 028702; institutionCode: TI
b. country: Thailand; locality: Songkla Province; Satingpra District, Bantom island, Lake Songkla, ca. 100 m offshore.; verbatimLatitude: 7° 28' N; verbatimLongitude: 100° 24' E; eventDate: Sep. 22, 1984; recordedBy: Y. Ito; collectionID: J.F. Maxwell 84-233; institutionCode: AAU

Distribution: Bangradesh, China (nationwide), India (Northern), Indonesia (Celebes, Moluccas, Lonbok, Sumatra), Japan, Malaysia (Borneo, Peninsular), Myanmar, Pakistan, Philippines, Thailand, Vietnam.

Genus *Stuckenia* Börner, 1912

Stuckenia pectinata (L.) Börner, 1912

Material

a. country: Myanmar; locality: Shan State; Inlay Lake; verbatimLatitude: 20° 36' N; verbatimLongitude: 96° 54' 44" E; eventDate: Nov. 13, 2005; recordedBy: Y. Ito; collectionID: K. Khaing 05210; institutionCode: TI

Distribution: Bangladesh, Bhutan, China (nationwide), India (nationwide), Indonesia (Sumatra, Sulawesi), Japan, Myanmar, Nepal, Pakistan, Sri Lanka; Worldwide.

Family Ruppiaceae

Genus *Ruppia* L., 1753

Ruppia maritima L., 1753

Material

a. country: Thailand; locality: Khao San Yot Natl Park.; verbatimLatitude: 12° 9' 15" N; verbatimLongitude: 99° 58' 44" E; eventDate: Nov. 13, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1706; institutionCode: BKF

Distribution: Bangladesh, China (North-Eastern, Central, Southern), India (Southern), ?Myanmar, Nepal, Sri Lanka, Thailand, Vietnam; Worldwide.

Order Asparagales

Family Amaryllidaceae

Genus *Crinum* L., 1753

Crinum thaianum J. Schul., 1971

Materials

Other materials:

a. country: Thailand; locality: Phang Nga Province; Klong Tam Nung; verbatimLatitude: 8° 27' 22" N; verbatimLongitude: 98° 31' 8" E; recordedBy: Y. Ito; collectionID: C. Niyomdham 1256; institutionCode: AAU
b. country: Thailand; locality: Phang Nga Province; Ban Nang Yon, 30 miles N of Takua Pa, on the way to Ranong; verbatimLatitude: 9° 12' 20" N; verbatimLongitude: 98° 25' 28" E; eventDate: Apr. 18, 1970; recordedBy: Y. Ito; collectionID: J. Schulze 357; institutionCode: MO

Holotype:

a. country: Thailand; locality: Phang Nga Province; Ban Nang Yon, 30 miles N of Takua Pa, on the way to Ranong; eventDate: Apr. 18, 1970; recordedBy: Y. Ito; collectionID: J. Schulze 1011; institutionCode: US

Distribution: Thailand.

Notes: Lectotype was designated by Lekhak and Yadav (2012).

Fig. 6.

Figure 6.

Crinum thaianum in Thailand (3 Dec. 2003). Credit: R. Pooma.

Order Commelinales

Family Pontederiaceae

Genus *Eichhornia* Kunth, 1843

Eichhornia crassipes (Mart.) Solms, 1883

Materials

a. country: Myanmar; locality: Rangoon; verbatimLatitude: 16° 49' 37" N; verbatimLongitude: 96° 8' 58" E; eventDate: Jan. 2, 1938; recordedBy: Y. Ito; collectionID: F.G. Dickason 6966; institutionCode: GH

b. country: Myanmar; locality: Wakema; verbatimLatitude: 16° 36' 18" N; verbatimLongitude: 95° 10' 49" E; eventDate: Jan. 7, 1938; recordedBy: Y. Ito; collectionID: F.G. Dickason 7820; institutionCode: GH

c. country: Myanmar; locality: Shan State; Inle lake; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080645; institutionCode: MBK

d. country: Thailand; locality: Songkla Province, Talae Noi Waterfall Reserve, N end of Lake Songkla; verbatimLatitude: 7° 15' N; verbatimLongitude: 100° 26' 16" E; eventDate: Dec. 28, 1978; recordedBy: Y. Ito; collectionID: G. Congdon 162; institutionCode: AAU
e. country: Thailand; locality: Songkla Province; Talae Noi waterfowl reserve, N end of lake Songkla, near Phattalung; verbatimLatitude: 7° 15' N; verbatimLongitude: 100° 26' 16" E; eventDate: Dec. 28, 1978; recordedBy: Y. Ito; collectionID: G. Congdon & C. Hamilton 162; institutionCode: GH

Distribution: Native to South America.

Genus *Monochoria* C. Presl, 1827

Monochoria elata Ridl., 1918

Materials

a. country: Thailand; locality: Nakhon Si Thamarat Province; Phru Kuan Kleng; verbatimLatitude: 8° 26' 7" N; verbatimLongitude: 99° 57' 45" E; eventDate: Jan. 26, 1999; recordedBy: Y. Ito; collectionID: C. Niyomdham 5662; institutionCode: BKF
b. country: Thailand; locality: Phatthalung Province; Khuan Khanun; verbatimLatitude: 7° 44' 6" N; verbatimLongitude: 100° 0' 36" E; eventDate: Dec. 24, 2006; recordedBy: Y. Ito; collectionID: R. Pooma et al. 6609; institutionCode: BKF
c. country: Thailand; locality: Patalung Province; Thale Luang; verbatimLatitude: 7° 36' N; verbatimLongitude: 100° 10' E; eventDate: Mar. 21, 1960; recordedBy: Y. Ito; collectionID: L.B. & E.C. Abbe et al. 9698; institutionCode: BKF
d. country: Thailand; locality: Saraburi Province.; verbatimLatitude: 9° 16' N; verbatimLongitude: 99° 32' E; eventDate: Oct. 11, 1964; recordedBy: Y. Ito; collectionID: T. Smitinand 29879; institutionCode: BKF
e. country: Thailand; locality: Chachoengsao Province; near Phanom Sarakhan, 50km E of Chachoengsao; verbatimLatitude: 13° 40' N; verbatimLongitude: 101° 30' E; eventDate: Oct. 1, 1984; recordedBy: Y. Ito; collectionID: G. Murata et al. T-37035; institutionCode: BKF

Distribution: Malaysia (Peninsular), Thailand.

Monochoria hastata (L.) Solms, 1883

Materials

a. country: Myanmar; locality: Rangoon; verbatimLatitude: 16° 49' 37" N; verbatimLongitude: 96° 8' 58" E; eventDate: Nov. 1, 1937; recordedBy: Y. Ito; collectionID: F.G. Dickason 6665; institutionCode: GH
b. country: Myanmar; locality: Rangoon; verbatimLatitude: 16° 49' 37"; verbatimLongitude: 96° 8' 58" E; eventDate: Jan. 2, 1938; recordedBy: Y. Ito; collectionID: F.G. Dickason 7135; institutionCode: GH
c. country: Myanmar; locality: Shan State; Inle Lake; verbatimLatitude: 20° 35' 21" N; verbatimLongitude: 96° 54' 35" E; eventDate: Jan. 5, 1938; recordedBy: Y. Ito; collectionID: F.G. Dickason 7873; institutionCode: GH
d. country: Thailand; locality: Sakon Nakhon Province; Nong Han Pond; verbatimLatitude: 17° 15' 16" N; verbatimLongitude: 104° 9' 43" E; eventDate: Aug. 25, 2001; recordedBy:

Y. Ito; collectionID: R. Pooma, W.J.J.O. de Wilde, B.E.E. Duyfjes, V. Chamchumroon, K. Phattarahirankanok 2579; institutionCode: GH

e. country: Thailand; locality: Chiang Mai Province; Ching Hao District, Doi Ching Dao; verbatimLatitude: 19° 22' 7" N; verbatimLongitude: 98° 56' 47" E; eventDate: Sep. 30, 1989; recordedBy: Y. Ito; collectionID: J.F. Maxwell 89-1153; institutionCode: GH

f. country: Thailand; locality: Lampang Province; Chae Hom District, N part of the forest at Jaehomwittaya school; verbatimLatitude: 18° 41' N; verbatimLongitude: 99° 38' E; eventDate: Aug. 6, 2000; recordedBy: Y. Ito; collectionID: M. Panatkool 316; institutionCode: GH

g. country: Thailand; locality: Rayong Province; verbatimLatitude: 12° 41' 38" N; verbatimLongitude: 101° 13' 49" E; eventDate: Aug. 21, 1977; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 3782; institutionCode: GH

h. country: Thailand; locality: Chiang Mai Province; Phek Khaeng Kai; verbatimLatitude: 18° 47' 30" N; verbatimLongitude: 98° 57' 38" E; eventDate: Feb. 20, 1991; recordedBy: Y. Ito; collectionID: R. Pooma 91033; institutionCode: GH

i. country: Thailand; locality: Narathiwat Province; Paa Wai, Su Ngai Paadee; verbatimLatitude: 6° 7' 37" N; verbatimLongitude: 101° 54' 47" E; eventDate: Aug. 24, 1988; recordedBy: Y. Ito; collectionID: C. Niyomdham & W. Ueachirakan 1910; institutionCode: AAU

j. country: Thailand; locality: Kalasin Province; Muang Kalasin District.; verbatimLatitude: 16° 20' N; verbatimLongitude: 103° 32' E; eventDate: Mar. 13, 1990; recordedBy: Y. Ito; collectionID: C. Phengklai 0077; institutionCode: BKF

k. country: Thailand; locality: Phatthalung Province;nok Nam Thale Noi Bird Sanctuary; verbatimLatitude: 7° 47' N; verbatimLongitude: 100° 7' E; eventDate: Sep. 1, 1996; recordedBy: Y. Ito; collectionID: P. Wilkin 845; institutionCode: BKF

l. country: Thailand; locality: Sakon Nakhon Province; Nong han pond.; verbatimLatitude: 17° 15' 16" N; verbatimLongitude: 104° 9' 43" E; eventDate: Aug. 25, 2001; recordedBy: Y. Ito; collectionID: R. Pooma et al. 2579; institutionCode: BKF

m. country: Thailand; locality: Rayong Province.; verbatimLatitude: 12° 41' 38" N; verbatimLongitude: 101° 13' 49" E; eventDate: Aug. 21, 1977; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 71314; institutionCode: BKF

n. country: Thailand; locality: Krungtep Phra Nakhon Province; Soi Somprasong.; verbatimLatitude: 13° 46' 36" N; verbatimLongitude: 100° 30' E; eventDate: Jan. 31, 1966; recordedBy: Y. Ito; collectionID: N. Fukuoka 7075; institutionCode: BKF

Distribution: Bhutan, Bangladesh, ?Cambodia, China (South), India (nationwide), Myanmar, Nepal, Papua New Guinea, Sri Lanka, Thailand, ?Vietnam.

Notes: Fig. 7.

Figure 7.

Monochoria hastata in Thailand (5 Sep. 2008). Credit: Udon.

Monochoria vaginalis (Burm.f.) C. Presl ex Kunth, 1843

Materials

a. country: Myanmar; locality: Shan State; Inlay Lake, Pindaya; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080637; institutionCode: MBK
b. country: Myanmar; locality: Rangoon; verbatimLatitude: 16° 49' 37" N; verbatimLongitude: 96° 8' 58" E; eventDate: Jan. 10, 1937; recordedBy: Y. Ito; collectionID: F.G. Dickason 6538; institutionCode: GH
c. country: Myanmar; locality: Kachin State; Tanaing, Hukaung valley; verbatimLatitude: 26° 6' 34" N; verbatimLongitude: 96° 42' 58" E; eventDate: Sep. 19, 2005; recordedBy: Y. Ito; collectionID: Tanaka et al. 040481; institutionCode: TI
d. country: Myanmar; locality: Shan State; Yae Aye Kan; verbatimLatitude: 20° 35' 41" N; verbatimLongitude: 96° 31' 46" E; eventDate: Nov. 26, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080056; institutionCode: TI
e. country: Thailand; locality: Narathiwat Province; Paa Waai, Su Ngi Paadee; verbatimLatitude: 6° 7' 37" N; verbatimLongitude: 101° 54' 52" E; eventDate: Sep. 4, 1987; recordedBy: Y. Ito; collectionID: C. Niyomdham & D. Sriboonma 1543; institutionCode: AAU
f. country: Thailand; locality: Narathiwat Province; Kok Kun Bet, Tak Bai; verbatimLatitude: 6° 15' 31" N; verbatimLongitude: 102° 0' 6" E; eventDate: Feb. 17, 1988; recordedBy: Y. Ito; collectionID: C. Niyomdham 1698; institutionCode: AAU
g. country: Thailand; locality: Trat Province; Saphan Hin; verbatimLatitude: 12° 0' N; verbatimLongitude: 102° 40' E; eventDate: May. 3, 1974; recordedBy: Y. Ito; collectionID: R. Geesink et al. 6510; institutionCode: AAU
h. country: Thailand; locality: Chanthabury Province; verbatimLatitude: 13° 3' N; verbatimLongitude: 101° 56' E; eventDate: Oct. 17, 1971; recordedBy: Y. Ito; collectionID: J.F. Maxwell 71-553; institutionCode: AAU

i. country: Thailand; locality: Chonbury Province, Sattahip District; taang Brang; verbatimLatitude: 12° 40' N; verbatimLongitude: 100° 55' E; eventDate: Dec. 4, 1972; recordedBy: Y. Ito; collectionID: J.F. Maxwell 72-600; institutionCode: AAU
j. country: Thailand; locality: Chonburi Province; Siricha District, Kow Kieo; verbatimLatitude: 13° 14' 15" N; verbatimLongitude: 101° 2' 32" E; eventDate: Sep. 4, 1975; recordedBy: Y. Ito; collectionID: J.F. Maxwell 75-979; institutionCode: AAU
k. country: Thailand; locality: Songkla Province; Haad Yai District, Klong Hoy Kong, W of Toong Loong; verbatimLatitude: 7° 0' 13" N; verbatimLongitude: 100° 27' 25" e; eventDate: May. 30, 1985; recordedBy: Y. Ito; collectionID: J.F. Maxwell 85-553; institutionCode: AAU
l. country: Thailand; locality: Songkhla Province; verbatimLatitude: 6° 37' N; verbatimLongitude: 100° 56' E; eventDate: Oct. 8, 1988; recordedBy: Y. Ito; collectionID: K. Larsen & S.S. Larsen 10290; institutionCode: AAU
m. country: Thailand; locality: Uttaradit Province; Road 1047 from Nam Pat ro Boh Bia; verbatimLatitude: 17° 43' N; verbatimLongitude: 100° 36' E; eventDate: Sep. 21, 1996; recordedBy: Y. Ito; collectionID: P.C. Boyce 1121; institutionCode: AAU
n. country: Thailand; locality: Nong Khai Province; Se Ka District, Tha Sa-sd; verbatimLatitude: 18° 19' 59" N; verbatimLongitude: 103° 43' 39" E; eventDate: Aug. 28, 2001; recordedBy: Y. Ito; collectionID: R. Pooma, W.J.J.O. de Wilde, B.E.E. Duyfjes, V. Chamchumroon, K. Phattarahirankanok 2874; institutionCode: GH
o. country: Thailand; locality: Phang Nga Province; Koh Kaw Khao island; verbatimLatitude: 9° 0' N; verbatimLongitude: 98° 50' E; eventDate: Jul. 15, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 30991; institutionCode: AAU
p. country: Thailand; locality: Chaiyaphum Province; Dat Don; verbatimLatitude: 15° 57' N; verbatimLongitude: 102° 2' E; eventDate: Aug. 13, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 31774; institutionCode: AAU
q. country: Thailand; locality: Ranong Province; NW of Phato; verbatimLatitude: 9° 50' N; verbatimLongitude: 98° 40' E; eventDate: May. 2, 1974; recordedBy: Y. Ito; collectionID: K. Larsen & S.S. Larsen 33543; institutionCode: AAU
r. country: Thailand; locality: Maehongson Province; Khun Yuam; verbatimLatitude: 18° 15' N; verbatimLongitude: 98° 0' E; eventDate: Sep. 7, 1974; recordedBy: Y. Ito; collectionID: K. Larsen & S.S. Larsen 34249; institutionCode: AAU
s. country: Thailand; locality: Phitsanulok Province; Tung Salaeng Luang; verbatimLatitude: 16° 59' N; verbatimLongitude: 100° 53' E; eventDate: Jul. 24, 1966; recordedBy: Y. Ito; collectionID: K. Larsen et al. 833; institutionCode: AAU
t. country: Thailand; locality: Phuket Province; W of Ban Bo Han; verbatimLatitude: 8° 7' N; verbatimLongitude: 98° 18' E; eventDate: Oct. 8, 1970; recordedBy: Y. Ito; collectionID: C. Charoenphol et al. 3422; institutionCode: AAU
u. country: Thailand; locality: Mahasarakarm Province; Koksung District, Amphur Chiengyeun; verbatimLatitude: 16° 11' 18" N; verbatimLongitude: 103° 17' 58" E; eventDate: Sep. 18, 1984; recordedBy: Y. Ito; collectionID: N. Fukuoka T-36166; institutionCode: GH
v. country: Thailand; locality: Chiang Mai Province; Doi Inthanon, N side of the route RS-13; verbatimLatitude: 18° 32' 23" N; verbatimLongitude: 98° 31' 15" E; eventDate: Jul. 22, 1988; recordedBy: Y. Ito; collectionID: S. Tsugaru T-61719; institutionCode: GH
w. country: Thailand; locality: Chachoengsao Province; Chachoengsao Wildlife Reserve; verbatimLatitude: 13° 26' N; verbatimLongitude: 101° 55' E; eventDate: Sep. 11, 1999; recordedBy: Y. Ito; collectionID: D.J. middleton, W. Sangkamethawee 227; institutionCode: GH

x. country: Thailand; locality: Krabi Province; Klongtom District, Ban Klong Rat; verbatimLatitude: 7° 55' 48" N; verbatimLongitude: 99° 13' 42" E; eventDate: Nov. 29, 1986; recordedBy: Y. Ito; collectionID: J.F. Maxwell 86-991; institutionCode: GH
y. country: Thailand; locality: Petchabury; verbatimLatitude: 13° 30' 6" N; verbatimLongitude: 99° 47' 37" E; eventDate: 11-14-12; recordedBy: Y. Ito; institutionCode: BKF
z. country: Vietnum; locality: Kontum Province; verbatimLatitude: 14° 42' 40" N; verbatimLongitude: 107° 49' 48" E; eventDate: Apr. 14, 1995; recordedBy: Y. Ito; collectionID: L. Averyanov et al.VH1360; institutionCode: AAU
aa. country: Vietnum; locality: Kon Tum Province; Dak Gley District; verbatimLatitude: 15° 6' 57" N; verbatimLongitude: 107° 42' 55" E; eventDate: Nov. 22, 1995; recordedBy: Y. Ito; collectionID: L. Averyanov et al. VH1906; institutionCode: AAU
ab. country: Vietnum; locality: Lam Dong Province; Lac Dung District; verbatimLatitude: 12° 8' N; verbatimLongitude: 108° 39' E; eventDate: Apr. 9, 1997; recordedBy: Y. Ito; collectionID: L. Averyanov et al. VH3814; institutionCode: AAU
ac. country: Vietnum; locality: Lam Dong Province; Lac Duong District; verbatimLatitude: 12° 8' N; verbatimLongitude: 108° 39' E; eventDate: Apr. 21, 1997; recordedBy: Y. Ito; collectionID: L. Averyanov et al. VH3896; institutionCode: AAU

Distribution: Bangladesh, Bhutan, China (nationwide), India (nationwide), ?Indonesia, Japan, Korea, ?Malaysia, Myanmar, Nepal, Papua New Guinea, Pakistan, Philippines, Sri Lanka, Thailand; Africa; Oceania.

Family Typhaceae

Genus *Typha* L., 1753

Typha angustifolia L., 1753

Materials

a. country: Thailand; locality: Chantabury Province; Klang (between bangkok and Paknam); verbatimLatitude: 12° 16' N; verbatimLongitude: 102° 20' E; eventDate: Mar. 11, 1958; recordedBy: Y. Ito; collectionID: Kai Larsen 2053; institutionCode: GH
b. country: Thailand; locality: Chonburi Province; Siracha District, Siracha island; verbatimLatitude: 13° 8' 56" N; verbatimLongitude: 100° 48' 37" E; eventDate: Nov. 29, 1992; recordedBy: Y. Ito; collectionID: J.F. Maxwell 92-776; institutionCode: GH
c. country: Thailand; locality: Petchabury; verbatimLatitude: 13° 24' 30" N; verbatimLongitude: 99° 48' 44" E; eventDate: Nov. 14, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1708; institutionCode: BKF
d. country: Thailand; verbatimLatitude: 13° 45' N; verbatimLongitude: 100° 29' E; recordedBy: Y. Ito; collectionID: M. Tagawa & I. Yamada T 112; institutionCode: TI

Distribution: Bangladesh, China (nationwide), India (nationwide), Japan, ?Myanmar, Pakistan; Worldwide.

Order Poales

Family Eriocaulaceae

Genus *Eriocaulon* L., 1753

Eriocaulon setaceum L., 1753

Materials

a. country: Thailand; locality: Sakon Nakhon; Thamphura Fall; verbatimLatitude: 17° 9' 15" N; verbatimLongitude: 104° 8' 10" E; eventDate: Jul. 22, 2003; recordedBy: Y. Ito; collectionID: Th. Wongprasert et al. 037-15; institutionCode: BKF
b. country: Thailand; locality: Phangnga, Khuraburi, Ko Phrathong; verbatimLatitude: 9° 6' N; verbatimLongitude: 98° 17' E; eventDate: Aug. 24, 2005; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 15067; institutionCode: BKF
c. country: Thailand; locality: Phu Kradung Natl Park. Tambon Srithan, Phu Kradung District; decimalLatitude: 16.90 N; decimalLongitude: 101.80 E; eventDate: Nov. 1, 2002; recordedBy: Y. Ito; collectionID: A. prajaksood and S. Suddee 243; institutionCode: BKF
d. country: Thailand; locality: Tambon Putthawee, Makham district.; eventDate: Oct. 5, 2002; recordedBy: Y. Ito; collectionID: A. prajaksood and S. Suddee 171; institutionCode: BKF
e. country: Thailand; locality: Khao Yai Natl Park, Muang District.; decimalLatitude: 14° 26' 29" N; decimalLongitude: 101° 22' 11" E; eventDate: Sep. 28, 2002; recordedBy: Y. Ito; collectionID: A. prajaksood and S. Suddee 163; institutionCode: BKF
f. country: Thailand; locality: Sakon Nakhon; Phu Phan Natl Park.; verbatimLatitude: 16° 51' N; verbatimLongitude: 103° 55' E; eventDate: Jul. 4, 1999; recordedBy: Y. Ito; collectionID: A. prajaksood 155; institutionCode: BKF

Distribution: Bangladesh, ?Cambodia, China (Southern), India (Western, Southern), Japan, ?Laos, ?Myanmar, Sri Lanka, Thailand, ?Vietnam.

Order Ceratophyllales

Family Ceratophyllaceae

Genus *Ceratophyllum* L., 1753

Ceratophyllum demersum L., 1753

Materials

a. country: Myanmar; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; recordedBy: Y. Ito; collectionID: TI040058; institutionCode: TI
b. country: Myanmar; verbatimLatitude: 16° 53' 19.18"; verbatimLongitude: 95° 52' 28.59"; recordedBy: Y. Ito; collectionID: TI05152; institutionCode: TI
c. country: Myanmar; recordedBy: Y. Ito; collectionID: MBK080650; institutionCode: TI

d. country: Thailand; locality: Kantchanabury; Hotel river Kwai; verbatimLatitude: 14° 1' 59" N; verbatimLongitude: 99° 31' 10" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1723; institutionCode: BKF
e. country: Thailand; locality: Bangkok; verbatimLatitude: 13° 45' N; verbatimLongitude: 100° 30' E; eventDate: Aug. 23, 1926; recordedBy: Y. Ito; collectionID: A. F. G. Kerr 11027; institutionCode: GH
f. country: Thailand; locality: Bangkok; verbatimLatitude: 13° 45' N; verbatimLongitude: 100° 30' E; eventDate: Aug. 23, 1926; recordedBy: Y. Ito; collectionID: A. Marcan 2135; institutionCode: GH

Distribution: Worldwide.

Order Proteales

Family Nelumbonaceae

Genus *Nelumbo* Adans., 1763

Nelumbo nucifera Gaertn., 1788

Distribution: Native to tropics in Asia and Oceania.

Order Saxifragales

Family Haloragaceae

Genus *Myriophyllum* L., 1753

Myriophyllum brasiliense Cambess, 1829

Material

a. country: Thailand; locality: Pahayao Province; 6 km from Phayaoa; verbatimLatitude: 19° 9' N; verbatimLongitude: 99° 56' E; eventDate: Sep. 24, 1996; recordedBy: Y. Ito; collectionID: J.A.N. Parnell & D.A. Simpson 1744; institutionCode: AAU

Distribution: Native in South America, naturalized in Asia, Oceania, and North America.

Myriophyllum spicatum L., 1753

Material

a. country: Myanmar; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; recordedBy: Y. Ito; institutionCode: TI

Distribution: China (nationwide), Japan, Myanmar; Europe.

Myriophyllum tetrandrum Roxb., 1820

Materials

a. country: Thailand; locality: Rayong Province; Ban phe; verbatimLatitude: 12° 40' N; verbatimLongitude: 101° 25' E; eventDate: Dec. 16, 1974; recordedBy: Y. Ito; collectionID: R. Geesink, P. Hiepko 7874; institutionCode: BKF
b. country: Thailand; locality: Chumphon, Ma Chana; verbatimLatitude: 10° 0' 24" N; verbatimLongitude: 99° 3' 18" E; eventDate: Mar. 4, 1976; recordedBy: Y. Ito; collectionID: T. Gunlund 12127; institutionCode: BKF
c. country: Thailand; locality: ChaChoengsao Province; Khao Ang Rua Nai Wildlife Sanctuary; verbatimLatitude: 13° 15' N; verbatimLongitude: 101° 50' E; eventDate: Nov. 5, 1993; recordedBy: Y. Ito; collectionID: K. Larsen et al. 44234; institutionCode: AAU
d. country: Thailand; locality: Saraburi Province; Muang District, Sahm Lahn forest; verbatimLatitude: 14° 31' 51" N; verbatimLongitude: 100° 54' 34" E; eventDate: Nov. 23, 1974; recordedBy: Y. Ito; collectionID: J.F. Maxwell 74-995; institutionCode: AAU
e. country: Thailand; locality: Songkla Province; ca 4km SE of Chana, along hwy 43; verbatimLatitude: 6° 52' 34" N; verbatimLongitude: 100° 57' 11" E; eventDate: Jul. 11, 1985; recordedBy: Y. Ito; collectionID: J.F. Maxwell 85-702; institutionCode: AAU
f. country: Thailand; locality: Yala Province; verbatimLatitude: 6° 34' N; verbatimLongitude: 101° 18' E; eventDate: Oct. 22, 1970; recordedBy: Y. Ito; collectionID: C. Charoenphol et al. 4144; institutionCode: AAU

Distribution: Bangladesh, China (Southern), India (nationwide), Malaysia (Peninsular), Myanmar, Thailand, Sri Lanka, ?Vietnam.

Myriophyllum tuberculatum Roxb., 1820

Materials

a. country: Myanmar; locality: Shan State; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080626; institutionCode: TI
b. country: Thailand; locality: Pattalung Province; Bah Baun District, Ban Naung Tong; verbatimLatitude: 7° 13' 34" N; verbatimLongitude: 100° 8' 39" E; eventDate: Jan. 12, 1987; recordedBy: Y. Ito; collectionID: J.F. Maxwell 87-29; institutionCode: BKF

Distribution: Bangladesh, China (Southern), India (Eastern, Southern), Indonesia, Malaysia (Penninsular, Borneo), Myanmar, ?Pakistan, Thailand; Australia.

Order Fabales

Family Fabaceae

Genus *Neptunia* Lour., 1790

Neptunia oleracea Lour., 1790

Material

a. country: Thailand; locality: Hotel river Kwai, Kantchanabury; verbatimLatitude: 14° 1' 59" N; verbatimLongitude: 99° 31' 10" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1720; institutionCode: BKF

Distribution: India, ?Myanmar, Thailand.

Notes: Fig. 8.

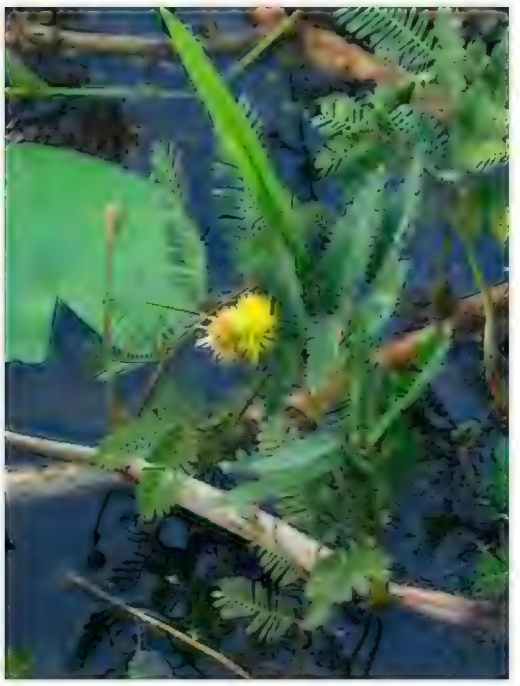

Figure 8.

Neptunia oleracea in Thailand (15 Nov 2012). Credit: Y. Ito.

Order Myrtales

Family Onagraceae

Genus *Ludwigia* L., 1753

Ludwigia adscendens (L.) H. Hara, 1953

Materials

a. country: Thailand; locality: Hotel river Kwai, Kantchanabury; verbatimLatitude: 14° 1' 59" N; verbatimLongitude: 99° 31' 10" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1720; institutionCode: BKF
b. country: Laos; locality: Savannaket Province; Nakai Plateau, Theun Douan lake, near Phong Sa Vahn resettlement village.; verbatimLatitude: 16° 34' 10" N; verbatimLongitude: 104° 44' 54" E; eventDate: May. 4, 2007; recordedBy: Y. Ito; collectionID: J. F. Maxwell 07-313; institutionCode: GH
c. country: Myanmar; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; eventDate: Dec. 8, 2006; recordedBy: Y. Ito; institutionCode: TI
d. country: Myanmar; verbatimLatitude: 16° 53' 19"; verbatimLongitude: 95° 52' 28" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; institutionCode: TI
e. country: Thailand; locality: Songkla Province, Talae Noi Waterfowl Reserve, N end of Lake Songkla, near Phattalung.; verbatimLatitude: 7° 15' N; verbatimLongitude: 100° 26' 16" E; eventDate: Dec. 28, 1978; recordedBy: Y. Ito; collectionID: G. Congdon & C. Hamilton #155; institutionCode: GH
f. country: Thailand; locality: Phetchabury.; verbatimLatitude: 13° 24' 30" N; verbatimLongitude: 99° 48' 44" E; eventDate: Nov. 14, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1709; institutionCode: BKF

Distribution: Bangladesh, Cambodia, China (nationwide), India (nationwide), Laos, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam.

Order Caryophyllales

Family Polygonaceae

Genus *Persicaria* Mill., 1754

Persicaria attenuata (R. Br.) Soják, 1974

Persicaria attenuata subsp. *pulchra* (Blume) K.L. Wilson, 1990

Material

a. country: Thailand; locality: Bung Bonapet Nonhunting Area; verbatimLatitude: 15° 41' 40" N; verbatimLongitude: 100° 16' 3" E; eventDate: Nov. 16, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1732; institutionCode: BKF

Distribution: China (Southern [Taiwan]), India, Indonesia (Java, Sumatra), ?Japan, Malaysia (Borneo), ?Myanmar, Philippines, Thailand; ?Australia.

Notes: Fig. 9.

Figure 9.

Persicaria attenuata subsp. *pulchra* in Thailand (17 Nov 2012). Credit: Y. Ito.

Order Solanales

Family Convolvulaceae

Genus *Ipomoea* L., 1753

Ipomoea aquatica Forssk., 1775

Materials

a. country: Myanmar; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; recordedBy: Y. Ito; collectionID: ???; institutionCode: TI
b. country: Myanmar; locality: Mandalay Division; in fields, rice paddies etc., a serious weed "Kazun"; verbatimLatitude: 21° 14' 17" n; verbatimLongitude: 95° 52' 33" E; eventDate: Jan. 10, 1939; recordedBy: Y. Ito; collectionID: F.G. Dickason 9575; institutionCode: GH
c. country: Myanmar; locality: Kachin State; Bhamo district. Habitat Kaugyi; verbatimLatitude: 24° 15' 19" N; verbatimLongitude: 97° 14' 4" E; eventDate: Sep. 12, 1908; recordedBy: Y. Ito; collectionID: -; institutionCode: GH
d. country: Thailand; locality: Songkla Prov., Ampoe Satingpra, Ban Satingpra; verbatimLatitude: 7° 10' 40" N; verbatimLongitude: 100° 36' 51" E; eventDate: Dec. 24, 1978; recordedBy: Y. Ito; collectionID: G. Congdon & C. Hamilton 127; institutionCode: GH

e. country: Thailand; locality: Tarutao end of beach at Malacca Creek; verbatimLatitude: 6° 33' 9" N; verbatimLongitude: 99° 40' 8" E; eventDate: Nov. 29, 1979; recordedBy: Y. Ito; collectionID: G. Congdon 207; institutionCode: GH
f. country: Thailand; locality: Uttradit, Fishai, Bao Bak Klong; verbatimLatitude: 17° 37' 33" N; verbatimLongitude: 100° 6' 16" E; eventDate: Oct. 20, 1992; recordedBy: Y. Ito; collectionID: J. F. Maxwell 92-655; institutionCode: GH
g. country: Thailand; locality: Nakhon ratchasima Prov., Pak Chong Dist., Khao Yai Park; verbatimLatitude: 14° 39' 31" N; verbatimLongitude: 101° 26' E; eventDate: Oct. 17, 1985; recordedBy: Y. Ito; collectionID: G. Staples, T. Wongprassert 162; institutionCode: GH
h. country: Thailand; locality: Trang Prov., Yanta Khao Dist.; verbatimLatitude: 7° 26' 19" N; verbatimLongitude: 99° 44' 44" E; eventDate: Oct. 24, 1985; recordedBy: Y. Ito; collectionID: G. Staples, T. Wongprassert 180; institutionCode: GH
i. country: Thailand; locality: Phuket Prov., near Nai Yang National Park; verbatimLatitude: 8° 5' 19" N; verbatimLongitude: 98° 17' 52" E; eventDate: Oct. 25, 1985; recordedBy: Y. Ito; collectionID: G. Staples, T. Wongprassert 200; institutionCode: GH
j. country: Thailand; locality: Saraburi Prov.; verbatimLatitude: 14° 32' 56" N; verbatimLongitude: 100° 54' 13" E; eventDate: Apr. 11, 1985; recordedBy: Y. Ito; collectionID: G. Staples, T. Wongprassert 219; institutionCode: GH
k. country: Thailand; locality: Kanchanaburi Prov.; verbatimLatitude: 14° 2' 46" N; verbatimLongitude: 99° 31' 7" E; eventDate: Nov. 15, 1985; recordedBy: Y. Ito; collectionID: G. Staples, T. Wongprassert 274; institutionCode: GH
l. country: Thailand; locality: Kampangpet; verbatimLatitude: 7° 11' 31" N; verbatimLongitude: 100° 35' 35" E; eventDate: Nov. 28, 1977; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 3944; institutionCode: GH
m. country: Thailand; locality: Khon Kaen Prov., Chumphae Distr.; verbatimLatitude: 16° 33' 9" N; verbatimLongitude: 102° 5' 50" E; eventDate: May. 12, 1985; recordedBy: Y. Ito; collectionID: G. Staples, T. Wongprassert 399; institutionCode: GH
n. country: Thailand; locality: Songkla, Ranot; verbatimLatitude: 7° 47' 31" N; verbatimLongitude: 100° 18' 13" E; eventDate: Dec. 22, 2006; recordedBy: Y. Ito; collectionID: Pooma, R., Pattharahirantricin, N., Sirimongkol, S. 6548; institutionCode: GH

Distribution: Bangladesh, Cambodia, China (nationwide), India (nationwide), Laos, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam.

Family Plantaginaceae

Genus *Callitriche* L., 1753

Callitriche palustris L., 1753

Distribution: Bangladesh, Bhutan, China (nationwide), India (Northern [Jammu and Kashmir], Southern [Tamil Nadu]), Japan, ?Myanmar, Nepal, Pakistan, Sri Lanka; Cosmopolitan.

Genus *Limnophila* R. Br., 1810

Limnophila heterophylla (L.) Druce, 1914

Materials

a. country: Thailand; locality: Chiang Rai Province; Mae Chan District, Akcha village; verbatimLatitude: 20° 12' 4" N; verbatimLongitude: 99° 56' 45" E; eventDate: Nov. 7, 1993; recordedBy: Y. Ito; collectionID: J.F. Maxwell 93-1364; institutionCode: GH
b. country: Thailand; locality: Chiang Rai Province; Maesai District, Wat Thamsaohin Phyanak; verbatimLatitude: 20° 24' 30" N; verbatimLongitude: 99° 53' E; eventDate: Feb. 14, 1983; recordedBy: Y. Ito; collectionID: H. Koyama, H. Terao, T. Wongprasert T-33500; institutionCode: GH
c. country: Thailand; locality: Chiang Mai Province; Doi Inthanon, near guest house; verbatimLatitude: 18° 32' 55" N; verbatimLongitude: 98° 31' 28" E; eventDate: Jul. 23, 1988; recordedBy: Y. Ito; collectionID: S. Tsugaru T-61736; institutionCode: GH
d. country: Thailand; locality: Saraburi; verbatimLatitude: 14° 34' 51" N; verbatimLongitude: 100° 54' 52" E; eventDate: Feb. 28, 1982; recordedBy: Y. Ito; collectionID: A. Ubolcholaket s.n.; institutionCode: AAU
e. country: Thailand; locality: Chonburi Province; Sattalip District, Taong Breng; verbatimLatitude: 12° 43' N; verbatimLongitude: 100°56' E; eventDate: May. 7, 1972; recordedBy: Y. Ito; collectionID: J.F. Maxwell 72-221; institutionCode: AAU
f. country: Thailand; locality: Narathiwat Province; Toh Deang peat swamp; verbatimLatitude: 6° 25' 35" N; verbatimLongitude: 101° 49' 26" E; eventDate: Aug. 28, 2001; recordedBy: Y. Ito; collectionID: C. Niyomdham 6533; institutionCode: BKF

Distribution: Cambodia, China (Eastern), India, Malaysia, ?Myanmar, Nepal, Sri Lanka, Thailand, Vietnam.

Limnophila indica (Roxb.) Benth., 1835

Materials

a. country: Myanmar; locality: Shan State; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080633; institutionCode: TI
b. country: Thailand; locality: Loei Province; Phu Kradung, S. of Loi; verbatimLatitude: 16° 53' N; verbatimLongitude: 101° 53' E; eventDate: Nov. 7, 1970; recordedBy: Y. Ito; collectionID: Ch. Charoenphol et al. 4797; institutionCode: AAU
c. country: Thailand; locality: Kanchanaburi Province; Thong Pha Phum District, Rintin Forest; verbatimLatitude: 14° 47' 41" N; verbatimLongitude: 98° 44' 42" E; eventDate: Nov. 6, 1979; recordedBy: Y. Ito; collectionID: T. Shimizu et al. T-21918; institutionCode: BKF
d. country: Thailand; locality: Mukdahan Province; Muang District, Dongman Village, along route 212; verbatimLatitude: 16° 32' 16" N; verbatimLongitude: 104° 42' 16" E; eventDate: Dec. 12, 1982; recordedBy: Y. Ito; collectionID: H. Koyama et al. T-30856; institutionCode: BKF
e. country: Thailand; locality: Khon Kaen Province; Phu Khieo Game reserve, 80 km E of Phetchabun; verbatimLatitude: 16° 28' 32" N; verbatimLongitude: 102° 50' 4" E; eventDate: Nov. 7, 1984; recordedBy: Y. Ito; collectionID: G. Murata T-41716; institutionCode: BKF

Distribution: Bangladesh, ?Cambodia, China (South), India (nationwide), ?Indonesia, Japan, ?Laos, ?Malaysia, Myanmar, ?Nepal, Pakistan, Papua New Guinea, Sri Lanka, Thailand, ?Vietnam; Africa; Oceania.

Limnophila sessiliflora (Vahl) Blume, 1826

Material

a. country: Myanmar; locality: Kachin State; Tawang Hka (river) near Makaw Village, 6 miles N of Tanaing.; verbatimLatitude: 26° 26' 51" N; verbatimLongitude: 96° 41' 16" E; eventDate: Dec. 2, 2005; recordedBy: Y. Ito; collectionID: Murata et al. 040837; institutionCode: TI

Distribution: Bangladesh, Bhutan, ?Cambodia, China (nationwide), India (nationwide), ?Indonesia (Java), Japan, ?Malaysia, Myanmar, Nepal, Sri Lanka, Thailand, ?Vietnam.

Family Phrymaceae

Genus *Mimulus* L., 1753

Mimulus orbicularis Wall. ex Benth., 1835

Material

a. country: Thailand; locality: Ayutthaya Provinve; Pathun Thani, Bangsit.; verbatimLatitude: 14° 18' 39" N; verbatimLongitude: 100° 17' 38" E; eventDate: Nov. 14, 1965; recordedBy: Y. Ito; collectionID: M. Tagawa & K. Iwatsuki T-289; institutionCode: BKF, TI

Distribution: Bangladesh, India (Western [Orissa, West Bengal]), Myanmar, Thailand; Australia.

Notes: Barkera and Jobson (2013) reported a new locality of this species from northern Australia.

Order Lamiales

Family Lentibulariaceae

Genus *Utricularia* L., 1753

Utricularia aurea Lour., 1790

Materials

a. country: Myanmar; locality: Inle Lake; verbatimLatitude: 20° 35' 21" N; verbatimLongitude: 96° 54' 35" E; eventDate: Jan. 5, 1938; recordedBy: Y. Ito; collectionID: F.G. Dickason 7857; institutionCode: GH
b. country: Myanmar; locality: Bago Division; Pyat Township.; verbatimLatitude: 18° 42' 22" N; verbatimLongitude: 95° 5' 59" E; eventDate: Dec. 9, 2006; recordedBy: Y. Ito; collectionID: Sugawara et al. 036434; institutionCode: TI
c. country: Myanmar; locality: Kachin State; Tanaing Township; verbatimLatitude: 26° 6' 34" N; verbatimLongitude: 96° 42' 58" E; eventDate: Sep. 19, 2005; recordedBy: Y. Ito; collectionID: Tanaka et al. 040485; institutionCode: TI
d. country: Thailand; locality: Chanthaburi Province; Makham; verbatimLatitude: 13° 0' N; verbatimLongitude: 101° 50' E; eventDate: Aug. 5, 1973; recordedBy: Y. Ito; collectionID: R. Geesink & C. Phengkhlai 6333; institutionCode: AAU
e. country: Thailand; locality: Ayuthia Province; Sara Buri - Klang Dong; verbatimLatitude: 14° 32' 9" N; verbatimLongitude: 100° 54' 34" E; eventDate: Aug. 8, 1979; recordedBy: Y. Ito; collectionID: T. Shimizu, H. Toyokuni, H. Koyama, T. Yahara, C. Niyomdham 9479; institutionCode: GH
f. country: Thailand; locality: Narathiwat Province; Swamp forest station, N of Sungai Kolok; verbatimLatitude: 6° 4' N; verbatimLongitude: 101° 57' E; eventDate: Aug. 17, 1995; recordedBy: Y. Ito; collectionID: K. Larsen et al. 45697; institutionCode: AAU
g. country: Thailand; locality: Saraburi; verbatimLatitude: 14° 35' 10" N; verbatimLongitude: 100° 54' 32" E; eventDate: Feb. 28, 1982; recordedBy: Y. Ito; collectionID: A. Ubolcholaket s.n.; institutionCode: AAU
h. country: Thailand; locality: Naai Province; Tah Wang Pah District, Naha Han Village; verbatimLatitude: 19° 6' 44" N; verbatimLongitude: 100° 45' 16" E; eventDate: Mar. 15, 2000; recordedBy: Y. Ito; collectionID: J.F. Maxwell 00-131; institutionCode: GH
i. country: Thailand; locality: Thonburi; verbatimLatitude: 13° 45' N; verbatimLongitude: 100° 30' E; eventDate: Nov. 15, 1970; recordedBy: Y. Ito; collectionID: J.F. Maxwell 70-85; institutionCode: AAU
j. country: Thailand; locality: Ang Thong Province; Muang District; verbatimLatitude: 14° 35' 41" N; verbatimLongitude: 100° 27' 25" E; eventDate: Dec. 11, 1971; recordedBy: Y. Ito; collectionID: J.F. Maxwell 71-787; institutionCode: AAU
k. country: Thailand; locality: Saraburi Province; Muang District, Sahm Lahn forest; verbatimLatitude: 14° 31' 51" N; verbatimLongitude: 100° 54' 34" E; eventDate: Jun. 30, 1974; recordedBy: Y. Ito; collectionID: J.F. Maxwell 74-648; institutionCode: AAU
l. country: Thailand; locality: Songkla Province; Haad Yai District, Klong Hoy Kong, W of Toong Loong; verbatimLatitude: 7° 0' 13" N; verbatimLongitude: 100° 27' 25" e; eventDate: May. 30, 1985; recordedBy: Y. Ito; collectionID: J.F. Maxwell 85-548; institutionCode: GH

m. country: Thailand; locality: Songkla Province; Muang - Chana Districts Border; verbatimLatitude: 6° 59' 6" N; verbatimLongitude: 100° 39' 26" e; eventDate: Jan. 17, 1985; recordedBy: Y. Ito; collectionID: J.F. Maxwell 85-75; institutionCode: GH
n. country: Thailand; locality: Surattani Province; Ban Takun Distr., Klong Saeng Wildlife Sanctuary.; verbatimLatitude: 9° 9' 43" N; verbatimLongitude: 98° 53' 21" E; eventDate: Feb. 16, 1994; recordedBy: Y. Ito; collectionID: J.F. Maxwell 94-230; institutionCode: GH
o. country: Thailand; locality: N of pie Mai; eventDate: Mar. 19, 1958; recordedBy: Y. Ito; collectionID: Th. Sorensen 2145; institutionCode: AAU
p. country: Thailand; locality: Chaiyaphum Province; Thung Kra Mang; verbatimLatitude: 16° 15' N; verbatimLongitude: 101° 30' E; eventDate: Aug. 9, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 31632; institutionCode: AAU
q. country: Thailand; locality: Chanthaburi Province; Bor Rai50 km E of Makham; verbatimLatitude: 12° 52' N; verbatimLongitude: 102° 7' E; eventDate: Sep. 1, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 32313; institutionCode: AAU
r. country: Thailand; locality: Narathiwat Province; S of Naratiwat; verbatimLatitude: 6° 30' N; verbatimLongitude: 101° 45' E; eventDate: Mar. 9, 1974; recordedBy: Y. Ito; collectionID: K. Larsen et al. 33129; institutionCode: AAU
s. country: Thailand; locality: Nakhon Ratchasima Province; Pak Thong Chai District, E part of Khao Yai Natl Park; verbatimLatitude: 14° 22' N; verbatimLongitude: 101° 12' E; eventDate: Aug. 11, 1968; recordedBy: Y. Ito; collectionID: K. Larsen et al. 3339; institutionCode: AAU
t. country: Thailand; locality: Nakhon Ratchasima Province; Phimai; verbatimLatitude: 15° 5' N; verbatimLongitude: 101° 39' E; eventDate: Jan. 12, 1967; recordedBy: Y. Ito; collectionID: T. Smitinand 33646; institutionCode: AAU
u. country: Thailand; locality: Chiang Mai Province; San Sai District; verbatimLatitude: 18° 56' 29" N; verbatimLongitude: 99° 1' 48" E; eventDate: Sep. 16, 1958; recordedBy: Y. Ito; collectionID: Th. Sorensen 5017; institutionCode: AAU
v. country: Thailand; locality: Narathiwat Province; Kok Dam peat Swamp forest; verbatimLatitude: 6° 26' 17" N; verbatimLongitude: 101° 49' 26" E; eventDate: Feb. 29, 1984; recordedBy: Y. Ito; collectionID: C. Niyomdham 807; institutionCode: AAU
w. country: Thailand; locality: Chainat Province; ca. 10 miles W of ta Klee toward; verbatimLatitude: 15° 14' N; verbatimLongitude: 100° 15' E; eventDate: Nov. 28, 1959; recordedBy: Y. Ito; collectionID: L. B. & E. C. Abbe, T. Smitinand 9232; institutionCode: GH
x. country: Thailand; locality: Buri Ram Province; near Ban Kruat; verbatimLatitude: 14° 30' N; verbatimLongitude: 103° 7' E; eventDate: Oct. 4, 1984; recordedBy: Y. Ito; collectionID: G. Murata, C. Phengklai, S. Mitsuta, H. Nagamasu, N. Nantasan T-37406; institutionCode: AAU
y. country: Thailand; locality: Khao San Yot Natl Park.; verbatimLatitude: 12° 14' 40" N; verbatimLongitude: 99° 55' 58" E; eventDate: Nov. 13, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1702; institutionCode: BKF
z. country: Thailand; locality: Phetchabury.; verbatimLatitude: 13° 30' 6" N; verbatimLongitude: 99° 47' 37" E; eventDate: Nov. 14, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1712; institutionCode: BKF
aa. country: Thailand; locality: Kantchanabury; verbatimLatitude: 14° 39' 21" N; verbatimLongitude: 98° 42' 27" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1730; institutionCode: BKF

Distribution: Bangladesh, China (Central, South), India (nationwide), Japan, Malesia (throughout), Nepal, Pakistan; Oceania.

Utricularia australis R. Br., 1810

Materials

a. country: Myanmar; locality: Bago Division, Donese; verbatimLatitude: 17° 37' 6" N; verbatimLongitude: 95° 47' 22" E; eventDate: Dec. 8, 2006; recordedBy: Y. Ito; collectionID: Sugawara et al. 036321; institutionCode: TI
b. country: Myanmar; locality: Shan State; Pindaya Township, Inya lake; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080627; institutionCode: TI
c. country: Myanmar; locality: Shan State; Pindaya Township, Inlay lake; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080644; institutionCode: TI
d. country: Myanmar; locality: Shan State; Nyaung Shwe Towhship, Inlay Lake; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080659; institutionCode: TI
e. country: Myanmar; locality: Mandaley Region; Maymyo (Pyinoolwin) Plateau; verbatimLatitude: 22° 2' 12" N; verbatimLongitude: 96° 28' 10" E; eventDate: Jan. 9, 1912; recordedBy: Y. Ito; collectionID: J.H. Lace 5948; institutionCode: GH
f. country: Myanmar; locality: Mandaley Region; Maymyo (Pyinoolwin); verbatimLatitude: 22° 2' 12" N; verbatimLongitude: 96° 28' 10" E; eventDate: Jan. 4, 1933; recordedBy: Y. Ito; collectionID: F.G. Dickason 5994; institutionCode: GH

Distribution: Bhutan, China (nationwide), India (nationwide), Indonesia (Java, Sumatra), Japan, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka; Africa, Europe, Oceania.

Utricularia gibba L., 1753

Materials

a. country: Myanmar; locality: Shan State; Inlay lake, Nyanug She Township; verbatimLatitude: 16° 53' 19" N; verbatimLongitude: 95° 52' 29" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080639; institutionCode: TI
b. country: Myanmar; locality: Tenasserim Division, Tawer District, Yebyu Township, Kan Bank Village area, coastal region; verbatimLatitude: 12° 5' 11" N; verbatimLongitude: 99° 0' 51" E; eventDate: Mar. 2, 1996; recordedBy: Y. Ito; collectionID: J.F. Maxwell 96-335; institutionCode: BKF
c. country: Thailand; locality: Songkla Province; Talae Noi waterfowl reserve; verbatimLatitude: 7° 15' N; verbatimLongitude: 100° 26' 16" E; eventDate: Dec. 28, 1978; recordedBy: Y. Ito; collectionID: G. Congdon, C. Hamilton 159; institutionCode: AAU
d. country: Thailand; locality: Lopburi Province; Supcham Pa Hill; verbatimLatitude: 14° 50' N; verbatimLongitude: 100° 55' E; eventDate: Nov. 19, 1984; recordedBy: Y. Ito; collectionID: G. Murata, C. Phengklai, S. Mitsuta, T. Yahara, H. Nagamasu, N. Nantasan T-50927; institutionCode: BKF
e. country: Thailand; locality: Chiang Mai Province; Doi Inthanon, near guest house; verbatimLatitude: 18° 32' 55" N; verbatimLongitude: 98° 31' 29" E; eventDate: Jul. 23, 1988; recordedBy: Y. Ito; collectionID: S. Tsugaru T-61738; institutionCode: BKF
f. country: Thailand; locality: Thathungna Dam, Kantchanabury; verbatimLatitude: 14° 13' 53" N; verbatimLongitude: 99° 13' 44" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: Y. Ito 1725; institutionCode: BKF

Distribution: Bangladesh, China (nationwide), India (nationwide), Indonesia (nationwide), Japan, Malaysia (nationwide), Myanmar, Nepal, Papua New Guinea, Sri Lanka, Thailand, ?Vietnam; Africa; Oceania; N. America; S. America.

Utricularia punctata Wall. ex A. DC., 1844

Materials

a. country: Myanmar; locality: Tenasserim Division, Tawer District, Yebyu Township, Kan Bank Village area, coastal region; verbatimLatitude: 12° 5' 11" N; verbatimLongitude: 99° 0' 51" E; eventDate: Mar. 2, 1996; recordedBy: Y. Ito; collectionID: J.F. Maxwell 96-336; institutionCode: BKF
b. country: Thailand; locality: Phang-nga Province; Kuraburi District, Bangwan Stream; verbatimLatitude: 9° 13' 34" N; verbatimLongitude: 98° 26' 22" E; eventDate: Dec. 28, 2006; recordedBy: Y. Ito; collectionID: T. Muadsud 210; institutionCode: BKF
c. country: Thailand; locality: Narathiwat Province; Bang Nara River; verbatimLatitude: 6° 23' 20" N; verbatimLongitude: 101° 49' 26" E; eventDate: Jan. 20, 2000; recordedBy: Y. Ito; collectionID: C. Niyomdham et al. 5990; institutionCode: BKF

Distribution: China (South), Indonesia (Sumatra), Malaysia (Borneo, Malaya), Myanmar, Thailand, ?Vietnam.

Utricularia stellaris L. f., 1781

Materials

a. country: Myanmar; locality: Rangoon; verbatimLatitude: 16° 49' 37" N; verbatimLongitude: 96° 8' 58" E; eventDate: Jan. 2, 1938; recordedBy: Y. Ito; collectionID: F.G. Dickason 6965; institutionCode: GH
b. country: Myanmar; locality: Bago Division; Pyat Township.; verbatimLatitude: 18° 49' 44" N; verbatimLongitude: 95° 18' 6" E; eventDate: Dec. 7, 2008; recordedBy: Y. Ito; collectionID: Tanaka et al. 080765; institutionCode: TI

Distribution: Bangladesh, India (nationwide), Myanmar, Nepal, Sri lanka; Africa.

Notes: Fig. 10.

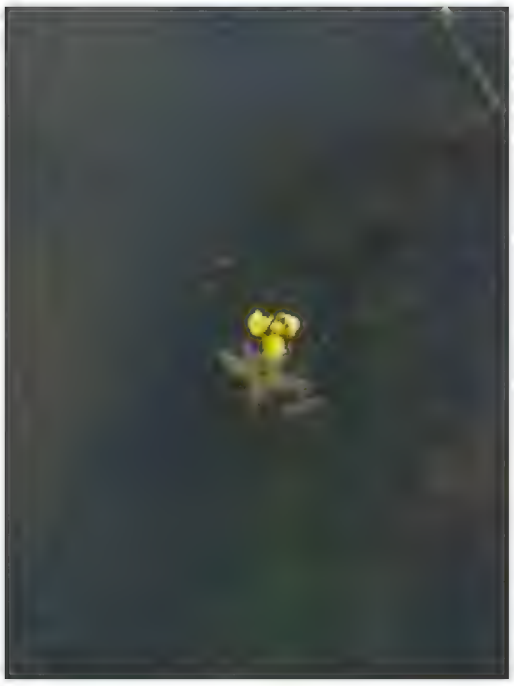

Figure 10.

Utricularia stellaris in Myanmar (7 Dec 2008). Credit: Y. Ito.

Order Asterales

Family Menyanthaceae

Genus *Nymphoides* Ség., 1754

Nymphoides aurantiaca (Dalzell) Kuntze, 1891

Materials

a. country: Thailand; locality: Krabi province; Ban Sai Khao, Konglom; verbatimLatitude: 7° 44' 59" N; verbatimLongitude: 99° 15' 48" E; eventDate: Oct. 1, 1960; recordedBy: Y. Ito; collectionID: ???; institutionCode: TI
b. country: Thailand; locality: Surat Thani Province; Tochang District, Ban Phace, Elong Sai Subdistrict; verbatimLatitude: 9° 18' 15" N; verbatimLongitude: 99° 3' 19" E; eventDate: Feb. 5, 1987; recordedBy: Y. Ito; collectionID: E.P. 1246; institutionCode: BKF
c. country: Thailand; locality: Chanthabury Province; 18 km W of Trak; verbatimLatitude: 12° 57' N; verbatimLongitude: 102° 0' E; eventDate: Oct. 23, 1972; recordedBy: Y. Ito; collectionID: No. 2027; institutionCode: BKF
d. country: Thailand; locality: Surin; verbatimLatitude: 14° 55' 53" N; verbatimLongitude: 103° 29' 17" E; eventDate: Nov. 20, 1976; recordedBy: Y. Ito; collectionID: J.F. Maxwell 72-531; institutionCode: AAU
e. country: Thailand; locality: Ranong Province; Ban phe; verbatimLatitude: 12° 40' N; verbatimLongitude: 101° 25' E; eventDate: Dec. 16, 1974; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 3303; institutionCode: BKF, GH
f. country: Thailand; locality: Ranong Province; near the town; verbatimLatitude: 9° 57' 14" N; verbatimLongitude: 98° 36' 22" E; eventDate: Nov. 23, 1970; recordedBy: Y. Ito; collectionID: R. Geesink, P. Hiepko 7871; institutionCode: BKF

g. country: Thailand; locality: Surattani Province; Tachang Ban Tahsae District, Klong Sai sub-district; verbatimLatitude: 9° 17' 58" N; verbatimLongitude: 99° 3' 27" E; eventDate: Feb. 5, 1987; recordedBy: Y. Ito; collectionID: T. Smitinand et al. 11591; institutionCode: BKF

Distribution: India (Southern), Papua New Guinea, Thailand; Oceania.

Notes: Fig. 11.

Figure 11.

Nymphoides aurantiaca in Thailand (15 May 2000). Credit: R. Pooma.

Nymphoides cambodiana (Hance) Tippery, 2009

Materials

a. country: Thailand; locality: Roi-et Province; verbatimLatitude: 16° 2' N; verbatimLongitude: 103° 38' E; eventDate: Jun. 22, 1969; recordedBy: Y. Ito; collectionID: J.F. Maxwell 87-165; institutionCode: GH
b. country: Thailand; locality: Nakhon Ratchasima Province; verbatimLatitude: 14° 36' N; verbatimLongitude: 101° 33' E; eventDate: Feb. 11, 1975; recordedBy: Y. Ito; collectionID: No. 46634; institutionCode: BKF

Distribution: Cambodia, Laos, Thailand, Vietnam.

Nymphoides hydrophylla (Lour.) Kuntze, 1891

Materials

a. country: Myanmar; locality: Shan State; Inlay lake, Nyanug She Township; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: A. Ubolcholaket s.n.; institutionCode: AAU

b. country: Myanmar; locality: Kachin State; S of Tanaing, Hukaung Valley; verbatimLatitude: 26° 06' 34" N; verbatimLongitude: 96° 42' 58" E; eventDate: Sep. 19, 2005; recordedBy: Y. Ito; collectionID: Nb. Tanaka et al. 080654; institutionCode: TI
c. country: Thailand; locality: Songkhla Province; Songkhla - Pattani road, ca 50km from Songkhla; verbatimLatitude: 6° 53' N; verbatimLongitude: 100° 55' E; eventDate: Oct. 31, 1990; recordedBy: Y. Ito; collectionID: Nb. Tanaka et al. 040480; institutionCode: TI
d. country: Thailand; locality: Chanthabury Province; between Chanthaburi and Trat; verbatimLatitude: 12° 40' N; verbatimLongitude: 102° 20' E; eventDate: Sep. 3, 1972; recordedBy: Y. Ito; collectionID: K. Larsen et al. 41006; institutionCode: AAU
e. country: Thailand; locality: Loei Province; Khunnaamphong, Phukradueng Natl Park; verbatimLatitude: 16° 54' N; verbatimLongitude: 101° 45' E; eventDate: Sep. 8, 1988; recordedBy: Y. Ito; collectionID: K. Larsen et al. 32398; institutionCode: AAU
f. country: Thailand; locality: Narathiwat; verbatimLatitude: 6° 26' N; verbatimLongitude: 101° 49' E; eventDate: Sep. 18, 1965; recordedBy: Y. Ito; collectionID: R. Pooma 85; institutionCode: BKF
g. country: Thailand; locality: Ranong Province; Bang Ben, Laem Son Forest Park; verbatimLatitude: 9° 28' N; verbatimLongitude: 98° 23' E; eventDate: Sep. 10, 1982; recordedBy: Y. Ito; collectionID: Chamlong 1104; institutionCode: BKF

Distribution: Cambodia, China (Southern [Taiwan]), Laos, Myanmar, Thailand, Vietnam.

Notes: Fig. 12.

Figure 12.
Nymphoides hydrophylla in Myanmar (3 Dec 2008). Credit: Y. Ito.

Nymphoides indica (L.) Kuntze, 1891

Materials

a. country: Myanmar; locality: Bago Division; W of Pyay; verbatimLatitude: 18° 42' 22" N; verbatimLongitude: 95° 5' 59" E; eventDate: Dec. 9, 2006; recordedBy: Y. Ito; collectionID: T. Shimizu et al. T-29263; institutionCode: BKF

b. country: Myanmar; locality: Rakhain State; Linthar, Ngapali Dam; verbatimLatitude: 19° 24' 27" N; verbatimLongitude: 94° 20' 3" E; eventDate: Dec. 12, 2006; recordedBy: Y. Ito; collectionID: T. Sugawara et al. 036430; institutionCode: TI
c. country: Myanmar; locality: Shan State; Inya lake, N of Pindaya; verbatimLatitude: 20° 59' 57" N; verbatimLongitude: 96° 39' 59" E; eventDate: Dec. 1, 2008; recordedBy: Y. Ito; collectionID: T. Sugawara et al. 036591; institutionCode: TI
d. country: Myanmar; locality: Shan State; Inlaylake, Nyaung Shwe Township; verbatimLatitude: 20° 32' 2" N; verbatimLongitude: 96° 53' 53" E; eventDate: Dec. 3, 2008; recordedBy: Y. Ito; collectionID: Nb. Tanaka et al. 080629; institutionCode: TI
e. country: Thailand; locality: Chiang Mai Province; Northern District, along road to San Kamphaeng, E of Chiang Mai; verbatimLatitude: 18° 47' 16" N; verbatimLongitude: 99° 0' 39" E; eventDate: Jun. 17, 1968; recordedBy: Y. Ito; collectionID: Nb. Tanaka et al. 080643; institutionCode: TI
f. country: Thailand; locality: Chanthabury Province; 18 km W of Trak; verbatimLatitude: 12° 57' N; verbatimLongitude: 102° 0' E; eventDate: Oct. 2, 1972; recordedBy: Y. Ito; collectionID: C.F. van Beusekom, C. Phengkhlai 1302; institutionCode: AAU
g. country: Thailand; locality: Songkla Province; Muang - Chana Districts Border; verbatimLatitude: 6° 59' 6" N; verbatimLongitude: 100° 39' 26" E; eventDate: Jan. 17, 1985; recordedBy: Y. Ito; collectionID: J.F. Maxwell 72-532; institutionCode: AAU
h. country: Thailand; locality: Songla Province; Talae Noi Waterfowl Reserve, N end of Lake Songkla, near Phattalung; verbatimLatitude: 7° 15' N; verbatimLongitude: 100° 26' 16" E; eventDate: Dec. 28, 1978; recordedBy: Y. Ito; collectionID: J.F. Maxwell 85-74; institutionCode: GH
i. country: Thailand; locality: Narathiwat Province; Paa Waai, Su Ngi Paadee; verbatimLatitude: 6° 7' 37" N; verbatimLongitude: 101° 54' 52" E; eventDate: Sep. 4, 1987; recordedBy: Y. Ito; collectionID: G. Congdon, C. Hamilton 153; institutionCode: AAU
j. country: Thailand; locality: Surin; verbatimLatitude: 14° 55' 53" N; verbatimLongitude: 103° 29' 17" E; eventDate: Nov. 20, 1976; recordedBy: Y. Ito; collectionID: C. Niyomdham & D. Sriboonma 1544; institutionCode: AAU
k. country: Thailand; locality: Nakhon Nayok Province; verbatimLatitude: 14° 12' 17" N; verbatimLongitude: 101° 13' 36" E; eventDate: Aug. 6, 1970; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 3304; institutionCode: GH
l. country: Thailand; locality: Phitsanulok Province; Tung Salaeng Luang; verbatimLatitude: 16° 59' N; verbatimLongitude: 100°53' E; eventDate: Jul. 19, 1966; recordedBy: Y. Ito; collectionID: C. Phengklai et al. 3750; institutionCode: GH
m. country: Thailand; locality: East, Si Saket Prov.; verbatimLatitude: 15° 7' N; verbatimLongitude: 104° 15' E; eventDate: Oct. 7, 1984; recordedBy: Y. Ito; collectionID: K. Larsen et al. 512; institutionCode: AAU
n. country: Thailand; locality: Kantchanabury Province; Hotel river Kwai; verbatimLatitude: 14° 1' 59" N; verbatimLongitude: 99° 31' 10" E; eventDate: Nov. 15, 2012; recordedBy: Y. Ito; collectionID: G. Murata, C. Phengklai, S. Mitsuta, H. Nagamasu, N. Nantasan T-49919; institutionCode: AAU, GH
o. country: Thailand; locality: Surin; verbatimLatitude: 14° 55' 53" N; verbatimLongitude: 103° 29' 17" E; eventDate: Dec. 8, 1976; recordedBy: Y. Ito; collectionID: Y. Ito 1718; institutionCode: BKF

Distribution: Bangladesh, ?Cambodia, China, India (nationwide), ?Indonesia, Japan, ?Malaysia, Myanmar, Nepal, Papua New Guinea, Sri Lanka, ?Vietnam; Oceania; N. America; S. America.

Analysis

The 78 species were classified into six geographic categories: Widespread; Eurasian cool-temperate; Asia – Australia; Tropical Asia; Pan-Tropics; invasive (Table 2). The data concerning the general distribution was taken Boyce (2012), Boyce et al. (2012), Chayamarit (2005), Cook (1996), Guo et al. (2010), Haynes (2001f), Haynes (2001d), Haynes (2001a), Haynes (2001e), Haynes (2001b), Haynes (2001c), Ho and Ornduff (1995), Ito (2013b), Ito et al. (2009), Landolt (2001), Simpson (2008), Larsen (2000), Tippery et al. (2009), Yamazaki (1990), Barkera and Jobson (2013).

Table 2.

A classification of aquatic plants in Myanmar and Thailand in distribution.

Widespread	**Eurasian cool-temperate**	**Asia – Australia**	**Asian tropics**	**Pan-Tropics**	**Invasive**
Acorus calamus	*Alisma plantago-aquatica*	*Acorus gramineus*	*Aponogeton lakhonensis*	*Hydrilla verticillata*	*Cabomba caroliniana*
Caldesia parnassifolia	*Potamogeton lucens*	*Blyxa aubertii*	*Barclaya longifolia*	*Ipomoea aquatica*	*Egeria densa*
Callitriche stagnalis	*Vallisneria spiralis*	*Blyxa echinosperma*	*Blyxa quadricostata*	*Lemna aequinoctialis*	*Eichhornia crassipes*
Ceratophyllum demersum		*Blyxa japonica*	*Crinum thaianum*	*Ludwigia adscendens*	*Elodea nutallii*
Landoltia punctata		*Hydrocharis dubia*	*Cryptocoryne albida*	*Neptunia oleracea*	*Limnocharis flava*
Lemna trisulca		*Limnophila indica*	*Cryptocoryne cordata*	*Nymphoides indica*	*Myriophyllum brasiliense*
Najas marina		*Limnophila sessiliflora*	*Cryptocoryne crispatula*	*Pistia stratiotes*	*Myriophyllum spicatum*
Potamogeton crispus		*Monochoria vaginalis*	*Cryptocoryne cruddasiana*	*Utricularia gibba*	*Nelumbo nucifera*
Potamogeton nodosus		*Mimulus orbicularis*	*Eriocaulon setaceum*		*Sagittaria guayanensis*
Ruppia maritima		*Nymphoides aurantiaca*	*Limnophila heterophylla*		
Spirodela polyrrhiza		*Najas graminea*	*Monochoria elata*		
Stuckenia pectinata		*Ottelia alismoides*	*Monochoria hastata*		
Typha angustifolia		*Persicaria attenuata* subsp. *pulchra*	*Myriophyllum tetrandrum*		
		Potamogeton distinctus	*Myriophyllum tuberculatum*		
		Potamogeton maackianus	*Najas indica*		
		Potamogeton octandrus	*Najas tenuis*		
		Potamogeton wrightii	*Nechamandra alternifolia*		

		Sagittaria trifolia	*Nymphaea nouchali*		
		Utricularia aurea	*Nymphaea pubescens*		
		Utricularia australis	*Nymphoides cambodiana*		
			Nymphoides hydrophylla		
			Ottelia cordata		
			Utricularia punctata		
			Utricularia stellaris		
			Wolffia globosa		

Discussion

Altogether, we identified 380 specimens, excluding 31 duplicates, belonging to 75 species of 41 genera from 23 plant families; the remaining 3 species belonging to 3 genera of 3 families were listed with no voucher specimens. Geographically the species distribution pattern can be classified into six categories: Widespread; Eurasian cool-temperate; Asia – Australia; Tropical Asia; Pan-Tropics; and Invasive.

Widespread

This category is mostly congruent with 'Widespread Species' of Sculthorpe (1967).

Eurasian cool-temperate

The species clustered in this category are distributed mainly in cool-temperate region of Eurasia, thus limiting the distribution to a small portion of Southeast Asia (Myanmar: Shan state; Thailand: Northern states).

Asia - Australia

The species included in this category have a distribution in either Australia or East Asia or both, e.g., Australia: *Mimulus orbicularis* and *Nymphoides aurantiaca*; East Asia: *Acorus gramineus*, *Blyxa japonica*, *Limnophila sessiliflora*, *Potamogeton distinctus*, *P. maackianus*, *P. wrightii*, and *Sagittaria trifolia*; Australia and East Asia: *Blyxa aubertii*, *B. echinosperma*, *Hydrocharis dubia*, *Limnophila indica*, *Monochoria vaginalis*, *Najas graminea*, *Ottelia alismoides*, *Persicaria attenuata* subsp. *pulchra*, *Potamogeton octandrus*, *Utricularia aurea*, and *U. australis*.

Asian tropics

This category comprises the largest number of species for the aquatic floras of Myanmar and Thailand. Some of the species included are endemic or narrowly distributed e.g., *Cryptocoryne* is endemic to tropical Asia. The monotypic genus *Nechamandra* occurs predominantly in India but also scattered in other parts of tropical Asia (also reported from one locality of Africa). Another monotypic genus *Barclaya* is among the tropical Asian endemics. The genera *Aponogeton* (Aponogetonaceae), *Blyxa*, *Najas*, (Hydrocharitaceae), *Myriophyllum* (Haloragaceae), *Nymphoides* (Menyanthaceae), *Monochoria* (Pontederiaceae), *Utricularia* (Lentibulariaceae) have their center of diversity in tropical Asia.

On a species level, the distribution is further classified into three groups: 1) Indo-China, 2) Southeast Asian, and 3) endemic to Myanmar and Thailand. The first group includes *Cryptocoryne crispatula*, *Eriocaulon setaceum*, *Limnophila heterophylla*, *Monochoria hastata*, *Myriophyllum tetrandrum*, *M. tuberculatum*, *Najas indica*, *N. graminea*, *Nechamandra alternifolia*, *Nymphaea nouchali*, *N. pubescens*, *Nymphoides hydrophylla*, and *Utricularia stellaris* (also known from Africa). The second group includes *Barclaya longifolia*, *Cryptocoryne albida*, *C. cordata*, *Monochoria elata*, and *Ottelia cordata*. The last group includes *Blyxa quadricostata*, *Crinum thaianum*, *Cryptocoryne cruddasiana*, and *Utricularia punctata*.

Pan-tropics

This category with eight species is mostly congruent with 'Pan-tropical Species' of Sculthorpe (1967).

Invasive

The aquatic floras of Myanmar and Thailand have well known invasive aquatic species including *Elodea densa* (Hydrocharitaceae) and *Eichhornia crassipes* (Pontederiaceae).

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